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ABSTRACT

An external evaluation of a subprogram of the Experimental Schools Program called the Edgewood School Plan, this study attempted to discover the extent to which educational changes can be accurately explained and forecast. A model was constructed containing the three explanatory variables of conditions, decisions, and effects and the criterion variable of support. These were measured through a questionnaire sampling of the perceptions of the school staff. The three aspects of the Edgewood School Plan studied were known as the best paced mathematics project (an individualized approach), the external high school project (an alternative program for dropouts), and the cultural advocacy project (a program emphasizing Mexican American heritage). Item part-whole correlations and the interrelationship among the mean scores of the four variables were calculated. Findings indicated that perceptions concerning the need for proposed change (or the variable "conditions") is the single most powerful explanatory variable affecting adoption of a program. Participation in the decision-making process and perceived effects of the project have less influence on adoption. The study also indicated, however, that when resources and approval are more vital to adoption than perceived general support, the decision-making process becomes the strongest variable. Researchers concluded that change can be predicted through a study of participants' perceptions before adoption. (Author/JM)

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The Explanation of Educational Change: Case Studies in the Edgewood School Plan

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CHAPTER I: INTRODUCTION

The educational institution occupies a central role in American society. Potentially, at least, the higher the quality of education an individual received, or the higher the degree attained, the better the quality of life for that individual. Understandably, then, a considerable number of educational innovations introduced within the last decade have been the result of general pressures from the civil rights movement and from local community action groups seeking to maximize the potentialities and capabilities of educationally disadvantaged students. Many of these innovations have been supported in large measure by federal funds.

One of the major undertakings of the federal government as a sponsor of educational "change" was the Experimental Schools Program, established in 1968 by the US Office of Education and later transferred to the National Institute of Education. (58) This program was designed to enable several experimental sites, which represented varying types of needs in their student populations, to develop and implement educational alternatives with the help of long term federal funding. The intent of the Experimental School Program was that the educational alternatives so initiated would become self sustaining practices incorporated into the district when the federal seed money had been exhausted. The study of educational change in these experimental schools sites was therefore regarded by the National Institute of Education as a priority area in the external evaluation design. The present study was contracted with Development Associates, a private firm.

The present research was directed toward investigating educational change in the Edgewood Independent School District, San Antonio, Texas, funded in May 1972 for a period of five years, as one of its experimental schools sites. (14) The purpose of the report, however, was not to document the events of change, but to indicate the extent to which educational changes could be accurately explained and forecast. The study used a model that incorporated a small number of salient variables and a procedure with minimum impingement upon the operation of the school system.

Preliminary Steps in the Study of Change

The Development Associates staff began its external change evaluation through an intensive study of the experimental school plan for the Edgewood district, commonly called the Final Plan (27) and the Office of Education request for proposals (14). These two documents discussed holistic change and outlined several procedures for arriving at the modifications proposed.* External evaluation was to monitor and describe the events in the process and, additionally, explain that process in the local setting.

*The importance of holistic change was later diminished by the National Institute of Education as a dimension because of limitations of resources. (51)

The research team, after a thorough study of the change literature, prepared a baseline investigation of the conditions and events leading up to the local experimental program (50), measured some staff and student characteristics as the program began (18), and monitored the planning and implementation sessions within the program. The monitoring was reported early in an interim report (14), later through observations of process (54), perceptions of the program and process (14), and the results of academic achievement and affective growth (13, 14, 41, 55, 62).

During the latter part of the second program year and into the beginning of the third, the experimental program underwent a substantial internal re-examination. Subsequently, some of the treatments were dropped, given limited resource inputs, or were modified. Others were added. (14, 30) It became evident, then, that descriptions of events and treatments would not wholly account for student impact. The process of change took on added importance in the external evaluation design.

The Development Associates staff researched several models for documenting the process of change and proposed a sociological approach in its third and fourth phase proposals (23, 24). A joint National Institute of Education/Development Associates seminar was convoked shortly thereafter, with members of the staffs of those organizations and outside consultants examining alternative methods. The position papers and summary examinations of the models were included in a set of general guidelines to the external evaluation team (12).

The technical panel, an established group of expert advisors to the external study of the experimental schools program in Edgewood, then met and studied ways of devising/adapting a model amenable to higher order statistical manipulation and capable of providing information about critical factors in the change process. The strategy was to first identify a small number of variables salient to the process and the program, which potentially lent themselves to study by quantifiable means, and then to specify the appropriate operationalization of those variables.

The Salient Variables

After reviewing a number of leadership strategies for producing educational change, Thompson (57) identified two essential factors in the change process:

1. commitment to the desired educational change (innovation) evidenced by at least five significant leaders in the school system, and
2. congruent decision making with respect to both superordinates and subordinates on the part of leaders involved in effecting the educational change.

Organizational development theory generally (33, 35) tended to support the notion that change could not be effected unless supported by persons in the upper levels of the organizational hierarchy, that is, top management must at least feel a need for the change even though in some instances initiative for the change may come from lower levels; and effective communication must exist between the agents of change and those in the other levels of the organizational hierarchy so that subordinates feel informed about and involved in the decision making process effecting change.

The first point was also supported in the literature by Charters & Pellegrin (15) who found that conflict in goals, values, and interests in the relationships among the central staff, school administrators, project managers, and school staff was one of the major impediments to change. Levine (42) and Mangione (44) also agreed that the leadership factor was critical to the change process. Cunningham (16) specifically noted that the involvement of school board leadership in educational change was critical and that citizens often failed to reach their goals because they overlooked that entity as a potential agent of change.

Bennis et al (8) noted that resistance to change was a function of the extent to which the client system possessed insufficient knowledge about change, distrusted the agent, and/or had little influence in controlling the nature and direction of the change. Dennis (17), Goodlad & Anderson (36), Mann & Hoffman (45), and Oliver (52) found that participation by subordinates led to greater commitment to effecting change.* Agnew & Hsu (1) and Wigren (63) found much greater resistance to change when it was imposed by superordinates. Owens (53) also noted that the involvement of teachers in the decision making process paid off but that teachers did not want or expect to be involved in every decision. Similarly, Gage (34), Barr et al (6), and Morsch & Wilder (48) stated that it was not the quantity of involvement in the decision making process that appeared to be the criterion for successful innovation, but that subordinates were indeed given the opportunity to be involved.

This review of the change process in organizational systems indicated, in particular, the importance of taking into account two basic variables in the assessment of change:

1. the outlook of persons in all levels of the organizational hierarchy, i.e., school board members to classroom teachers; and
2. the degree to which persons in the organizational system were involved in the decision making process affecting the educational change.

This literature was supplemented by a review of several studies more sociological in nature, namely that of Alers-Montalvo (2, 3, 4), Arce (5), and Loomis et al (43).

These latter works underscored the importance of two types of conditions affecting change: conditions considered essential for an innovation to be attempted, and conditions considered conducive to the intensive implementation of change. The first set of conditions included four factors regarded by their authors as absolute, i.e., essential for change to occur:

1. The people in a social system must feel the need for change.
2. The change must be culturally compatible with the existing social system.
3. Proof of the utility of the change must be offered.
4. The image of the person or organization attempting to bring about the change must be credible.

*In a massive study of educational innovation, Howes (22) also found that successful institutionalization of change was related to the degree to which individuals were informed, involved, and supported in the change process.

The second set of conditions included three factors regarded as primarily affecting the degree of implementation, that is, if the factors were negative, they might block implementation all together, but by and large affected only the extent to which a change was implemented:

5. The change and the process that brings the change must be understandable.
6. Effective use of existing leadership can facilitate change.
7. The alteration of prestige relationships can affect the success of the attempt to change.

While these sociologically oriented studies understandably did not make fine distinctions in levels of hierarchy affected by change, there is reasonable fit between factors 1, 4, 5, and 6 and concerns about critical factors in the change process identified in the portions of the organizational literature reviewed previously.

Though not stated in identical terms, support for factors 2, 3, and 7 could also be found in portions of the organizational literature (9, 33, 37, 44, 47). For example, by viewing factor 2, cultural fit, in terms of congruence between the innovation and the educational system, convergence emerged between the sociological and organizational models of change. In a study of change in higher education, Evans (14) pointed out that situational context affects innovation - regardless of the nature of the innovation, the degree to which individuals view it as consonant or dissonant with the existing instruction process will affect its acceptance or rejection. Miles (46, p. 16) also noted that:

> ...innovations which are perceived as threats to existing practice rather than mere additions to it are less likely of acceptance; more generally, innovations which can be added to an existing program without seriously disturbing other parts of it are likely to be adopted.

Consideration of the literature reviewed at this point in the search process led to the tentative formulation of a two dimensional model which included status or position in the organizational hierarchy as one dimension and critical aspect of the change process - conditions and decision making - as a second dimension. Following the sociological approaches, another important decision was made, namely, to view components in the second dimension of the model from the perceptions of persons located in various positions along the first dimension. This decision was based on the emphasis in much of the literature on the importance of people as carriers of change (37, 38, 39, 40, 48, 60, 61) and the conviction that the way individuals perceive an innovation is more important than the actual characteristics of that innovation (7). It is the individual's perceptions of an innovation rather than the actual characteristics of that innovation which are critical (7, 33, 47). In fact, individual perception forms the basis from which personal or group power is exerted or withheld relative to an innovation (35, p. 158):

> People tend to perceive information or reinterpret data in the direction of their motivation or wishes. People hear what they want to hear. They forget what they want to forget. They select from available information...and in general add their own distortion to the information they receive.

With these decisions about model characteristics made, however, the task of model building was still not complete. Components in the second dimension of the model encompassed primarily critical factors related to the successful initiation and implementation of a change. The concern was not just with the implementation of change per se, but also with the incorporation of innovative education practices into the experimental school sites. That is, the National Institute of Education was concerned about whether or not treatments introduced with the assistance of federal funding would lose their special project status and become part of the routinized behavior of the system. (58) Consequently, the second dimension of the model was expanded to include two additional factors directly related to the incorporation stage of change: treatment effects on desired outcomes and expressed support for continuance/expansion of the treatment (innovation).

Alers-Montalvo (2) had noted the importance of perceived innovative effects on favorable perceptions of the conditions of change; perceived favorable effects facilitated the movement of implementation toward incorporation. Berman & McLaughlin (9) pointed out the importance of determining the extent to which innovative programs achieved their intended objectives as a necessary factor in assessing change, but also cautioned that "the prima facie merits of the success of a program" will not by themselves assure its incorporation into the school system. An important factor influencing the incorporation will be the extent to which persons in various levels of the organizational hierarchy have come, for whatever reasons, to support continuance/expansion of the innovative practice. These authors (9) suggested several factors related to support which affected incorporation:

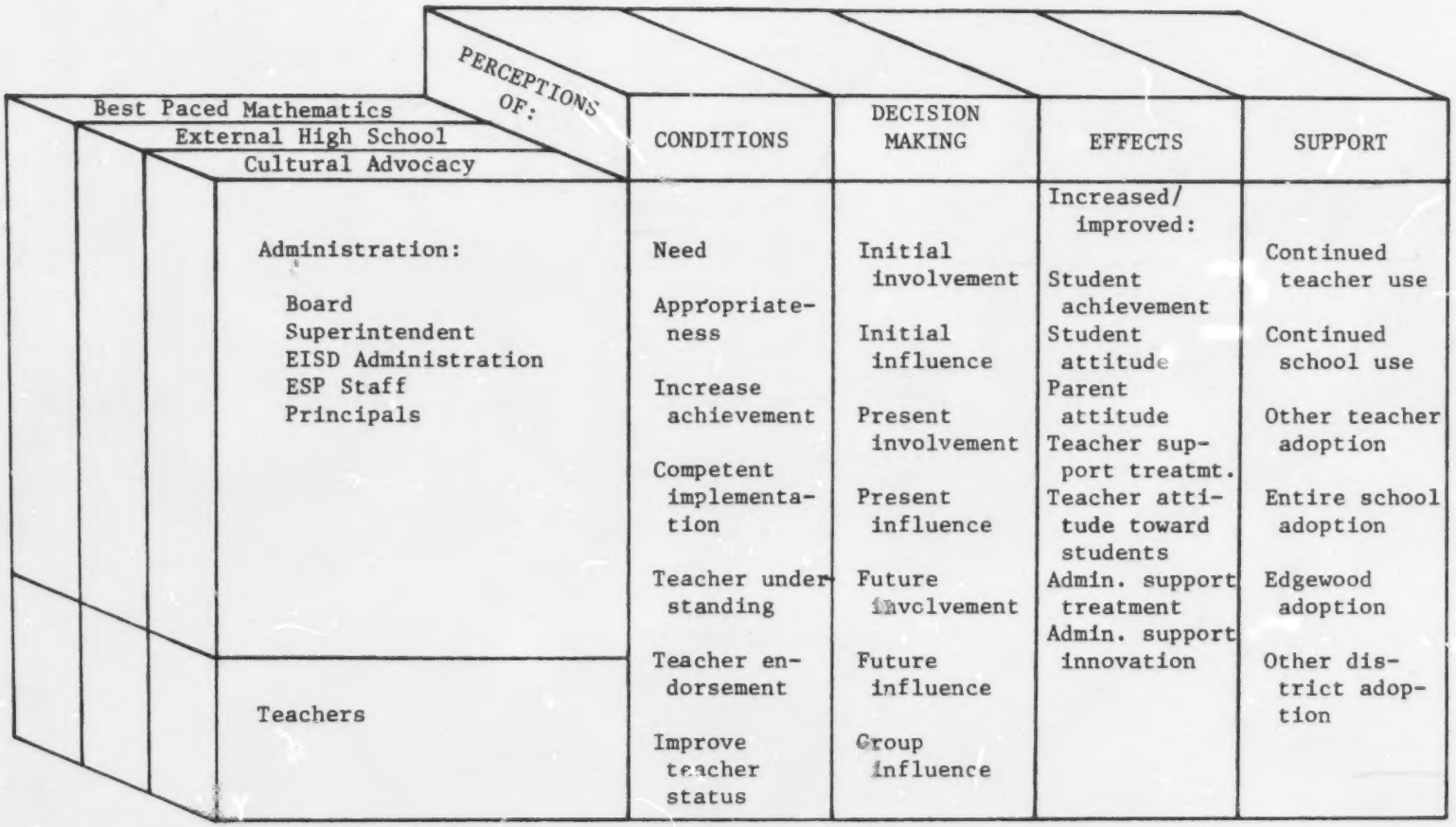
1. Because actors make decisions during the life of the project, a set of constituencies is created by subtle psychological processes of cognitive dissonance and less subtle political calculations of who gets what and who loses what.
2. As a project moves from an experimental to a legitimate, permanent status, it gathers an organizational momentum on the one hand and faces detractors threatened by dislocation on the other hand.
3. New decision points relative to reallocation of personnel, redistribution of resources, and redesign of curriculum become established.

Although stated in slightly different terms, these variables agreed generally with those in sociology literature.

The Final Model For Assessing Change

The model for assessing change that evolved from the review of the literature and planning sessions by research staff, the technical panel, and other consultants, then, was the two dimensional model presented in Figure 1. This model facilitated several analyses with potential for answering questions related to explaining and predicting educational change. First, it would make possible a determination of whether the variables identified as salient to the change process would in fact account for a large proportion of the variance in incorporated changes. Second, it would allow the identification of the variable or variables which were most predictive of incorporation of change. Third, it would provide some information about the interrelatedness

Figure 1: Multivariate Model for Predicting Incorporation of Innovative Practices



of these variables. Fourth, it would allow the determination of differences in perception of variables on the part of persons occupying different positions in the organization's status hierarchy. Finally, it would facilitate the determination of which level or levels in the organizational hierarchy were the most critical to the change process.

CHAPTER II: SETTING OF THE STUDY

Berman & McLaughlin (9, p. 19) pointed out that the political and demographic characteristics of the community in which a school district is located are important factors in producing pressure for change, constraining the possibilities of change, and presenting the need to change in the characteristics of the student population. It is important, therefore, to describe the salient characteristics of the Edgewood community and of the plan for change that provided the substantive focus for this study.

Edgewood Independent School District: Context for Change*

In spring 1971, when the administration was writing the experimental schools proposal, the Edgewood Independent School District ranked as one of the economically poorest school districts in the nation (50). Fifty-nine percent of the district's families had annual incomes of $5,000 or less. Half of these had earnings below the poverty level established by the federal government, while only four percent of the residents in the entire district had annual incomes above $15,000. Educational attainment of adult residents was similarly depressed. Only sixteen percent of the district's population over 25 years of age had completed high school, while another fifteen percent of that age group had completed only one year or less of schooling. The Rodriguez case of 1968 (58) - which challenged the legality of property taxes as the major source of school revenues on grounds that children in low tax base districts were denied equal educational opportunity - was still pending in the courts and earlier efforts of the district to consolidate with one of its wealthier neighbors had failed. The basic profile of the district was one of poverty, low per pupil expenditures, and low student achievement. District students scored progressively lower in relation to national norms on standardized achievement tests as they advanced through the grades, evidenced high drop out rates, and high in-grade retention rates, especially at the middle and senior high school levels.

The community's overwhelmingly Mexican American majority - over ninety percent of the 73,000 population in the district was of this ethnic background - had begun to assert itself politically. One of the initial events in the political activism was a 1968 student boycott which erupted over a set of grievances submitted to the school board. These grievances revolved around concerns about inappropriate student discipline, inadequate restroom supplies, the low number of qualified teachers, and insufficient resources and facilities for academic courses. While the boycott itself was not directly successful in changing the structure of the Edgewood system, it did serve as a catalyst for further community action.

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*This entire section relies heavily on documentation presented in another report prepared by the Development Associates staff: Munoz, Adolfo & Jones, Earl. A Historical Baseline of the Edgewood Independent School District. November 1972. (50)

Several months later, the Anglo superintendent, who had served in that position for 13 years, was forced to resign. The acting superintendent who replaced him was also quickly involved in controversy. Accused of discriminatory hiring practices by the American GI Forum, which alleged that qualified Mexican American professionals were not being employed, the acting superintendent resigned after indicating to the board that he would not continue to serve if ethnicity were a necessary consideration when recommending administrative appointments.

A new superintendent, appointed by the board on June 1, 1969, was a Mexican American who had administrative experience in both a local university and in a regional educational laboratory in Austin, Texas. Three major areas were targeted by this superintendent as priorities for immediate improvement:

1. staff development
2. design of curriculum for Mexican American children, and
3. increased parental participation in educational planning and implementation.

During the initial period of his term, the district's administration was decentralized. Three top administrative positions were vacated and were then filled by Mexican American personnel.

These changes in the superintendency and in administrative priorities, representing a more aggressive and Mexican American orientation, were accompanied by changes in the school board. The elections of 1970 altered the board's traditional businessman composition and so its moderate to conservative philosophical orientation. Two young men elected at this time as "The People's Candidates," began to introduce substantial changes in board policies and orientation. Initial efforts focused on improving the physical plant and management, and initiating research directed toward improving the quality of instruction. These efforts eventually led to a considerable modification of the school program.

Two bilingual programs, financed with monies from Title VII and Model Cities, were expanded and a number of special services designed to meet the needs and interests of specific groups within the student body were offered. These special services included, among others, a career opportunities program, a center school for special students, and participation in a curriculum adaptation network for bilingual education. (14, 50)

Characteristics of the Edgewood School Plan: Components of Change*

In accordance with the intent of the Experimental Schools Program, the local project staff was given relative autonomy to identify local educational needs and to present a detailed plan for implementing "holistic" change in the local school system using strategies considered to be viable by local decision makers. As would be expected from the description of the contextual factors, the Final Plan, Experimental Schools Project (27, pp. 11-12) was based on a "theory of incompatibilities" (10) which asserted that:

*This section relies primarily on descriptive and documentary data contained in two Development Associates reports (14, 56).

> ...The Edgewood schools represented a traditional system... designed for White, English speaking, Anglo Saxon, middle class oriented children...staffed by teachers trained only to teach such children...and which therefore failed to speak to the cultural and learning characteristics of the student population...it purported to serve.

The overall goal of the Edgewood School Plan was to redesign the district's educational program to eliminate these incompatibilities and to replace them with a program that would "reflect the student's cultural, language, and economic characteristics and be compatible with his learning style." This included five major components around which a more "compatible" educational system would be built:

1. Curriculum Development
2. Family Services
3. Staff Development
4. Cultural Advocacy
5. Services for the Handicapped.

The district contained a total of twenty-six schools; six of these were selected as a mini-system to serve as the experimental schools project site: four elementary schools, which fed into one middle school, that in turn fed into a senior high school.* This mini-system of six schools served 5,367 students in 1972, with a composition of 90% Mexican American, 6% Black, and 4% other, including Anglos. There were 221 teachers in these schools, who were 40% Mexican Americans, 9% Blacks, and 51% others, mostly Anglos. (18)

Since the comprehensive changes envisioned could not be accomplished directly by those involved in the day-to-day labors of the district, a special change agency was created to assume responsibility for this mini-system, the Edgewood School Plan (ESP). This group of "change agents" numbered about forty-five when the program was fully staffed. Eighteen of the ESP staff were primarily involved with delivering services directly to teachers and students: six counselors, six associate principals, four instructional coordinators, and two schedule directors. The remaining twenty-seven ESP employees constituted the project's central staff and consisted of a project director who supervised staff assigned responsibility for each of the five major components of the program. Nearly a year later, an internal evaluation component, responsible for providing certain information on local efforts to be used as feedback for the on-going improvement of the program, was added to this central operations staff.

Theory and Reality in the Edgewood School Plan

The Edgewood School Plan was designed primarily by the superintendent and his immediate associates. A potentially important question for assessing change, therefore, was the extent to which the needs perceived by those

*The feeder system did not funnel every child through this mini-system; children attended other middle and secondary schools. Additionally, the system was modified somewhat during the period covered by the research.

who designed ESP initially corresponded to the needs perceived by those who would implement it. A needs assessment survey (14), conducted by the internal evaluation staff during the second year of the project, 1973-1974, revealed some discrepancies or potential points of conflict within the program.

In the needs assessment survey, the internal evaluation staff polled five groups of people - teachers, students, principals, parents, and ESP staff - concerning their perceptions about desirable goals for ESP. If three or more of these groups agreed upon a particular goal, it was deemed to be a necessary program outcome; if three or more of these groups generally disagreed upon the goal, it was deemed to be an unnecessary program outcome. Goals agreed upon as being necessary were:

1. Develop and increase learning and social abilities through new methods.
2. Develop student's awareness of his ability to direct and create events that can change his world.
3. Help the student recognize the value of all people, their problems, and their contributions to society.
4. Provide the student with opportunities to use and further develop his skills in analyzing, synthesizing, and evaluating.

Goals resulting as unnecessary were:

1. Develop an appreciation for and understanding of the Mexican American culture.
2. Make Mexican Americans aware that they do not have to do things the Anglo way.
3. Provide understandable educational experiences compatible with students' economic, social, and cultural lives.
4. Praise the Mexican way of life that provides a satisfying way of living which is lasting and humane.

No clear cut designation as necessary or unnecessary was evidenced for the following goals:

1. Teach students in both English and Spanish.
2. Encourage the use of the student's home language.
3. Teach Mexican American culture in the schools.
4. Promote the understanding of all cultures.

The greatest agreement on this categorization of goals occurred among students, teachers, principals, and parents. Since all of these goals were implied in the Final Plan and since ESP staff members were designated as change agents to implement this plan, some divergence between their views and those of the other four groups would not be unexpected. In fact, the ESP staff felt committed to work toward implementing all of the goals contained in the original plan and the project director tried diligently to establish a base of support from which to work. (56, p. 17)

A study of the Edgewood board, conducted by the external evaluation staff at approximately the same time that the internal evaluation team conducted its needs assessment survey, also indicated some discrepancies with respect to the Final Plan and the views of the board, at least during the second year of operation. According to the Development Associates Second Interim

Report (14, pp. 135-136):

> The board was...only vaguely familiar with the purpose, goals, and objectives of ESP and did not appear to completely share the assumptions of the ESP Final Plan (bilingual education and cultural advocacy, as examples), or the present ESP operation, nor did it exhibit extraordinary support of ESP.

It is against this empirical description of the Edgewood School Plan, and the socio-political context into which it was infused, that the present study, based on the perceptions of the actors in the system, should be viewed.

CHAPTER III: METHODOLOGY

Since a major assumption of this study was that educational change is more affected by the perceptions system actors hold regarding a particular practice than by actual circumstances related to that practice, data pertaining to the four factors included in the model for educational change (conditions, decisions, effects, support) were obtained by self reported perceptions. The major actors were defined as those persons in the system most likely to influence adoption/rejection of the practices. Practices were chosen that had distinctive histories in the system. The analyses were then carried out for each practice and then across practices to provide the intended explanations of the processes of educational change.

Selection of Treatments for Study

Although the original intent of the Experimental Schools Program was to introduce comprehensive, holistic change within a school system, the limitations of resources made this a difficult task. This was officially recognized by the National Institute of Education midway through the five year funding and its importance was reduced. Further, although comprehensive change might be a worthy goal, it necessarily had to be made up of changes to specific activities within the system, whether or not these aggregated to what might be termed holistic modification of a system. (51)

In any event, change was seen as a process and interim measurement of that process necessitated identification of specific treatments or activities forwarding that process. Early in the external evaluation, three standards were set for the consideration of an activity as potentially leading to change (14, p. 15). The program activity was:

1. the result of a planned process;
2. designed to improve some aspect of pupil performance or community life;
3. different from conventional Edgewood district practices.

Additionally, reconsideration of activities after a trial period resulted in other modifications during the life of the project (14, p. 15):

> ...certain early changes were, in themselves, modified during the period...While some...were extended still further away from conventional Edgewood practices, others were returned toward former practices...

The dynamics of the change process, then, as it applied to treatments within the experimental program, were considered an important factor in the adoption/rejection decision making.

An examination of these revealed three with potential for explaining and predicting educational change as a process in this setting.

- One treatment had begun as a small trial, been modified extensively and utilized for two years, and was modified once more; it was still essentially in existence when the change study was undertaken and it had a fairly extensive history in the program: best paced mathematics.

- One treatment had begun early in the experimental schools program with a considerable emphasis in the documents but its implementation was restricted to mostly one person's activities; about midway through the experimental program the activities were "to be incorporated into the work of all the other components" and no discrete entity would be responsible but it was essentially unidentifiable and/or nonexistent thereafter: cultural advocacy.
- One treatment was created midway through the experimental schools program in response to needs expressed in a parental survey and a needs assessment survey; in its first year of operation it appeared to be gaining considerable and widespread support: the external high school.

The distinct histories and characteristics appeared to give a breadth and diversity necessary for the study of educational change.

Best Paced Mathematics

Best paced mathematics was an innovative, individualized program consisting of criterion referenced self paced learning materials. These were sequentially organized into short segments of learning (specific behavioral objectives coupled with diverse learning activities) which provided students with opportunities for repetition and immediate feedback. The objectives were cumulative so that the acquisition of each successive skill was dependent on the successful acquisition of that which preceded it.

Best paced mathematics began in the 1972-1973 school year with the efforts of a teacher to reorganize a traditional style algebra class (14). This reorganization was done as part of a mini-grant proposal submitted by the teacher using a management guide prepared by a professor from a local university (64).* Followup planning for the individualized mathematics program was also done by this classroom teacher. ESP duplicated the materials. (22)

In late summer 1973, the university consultant whose guide had served as a basis for the development of these materials, worked with ESP staff and a group of ESP math teachers to develop a vertically articulated, comprehensive K through 12 curriculum for individualized, continuous progress in mathematics. Teacher training consisted of workshops on the preparation of teaching packets for use in such a program. In December 1973, the ESP central staff decided to concentrate the program's efforts on new materials and to allow two half-days per work week for maintenance of all existing ESP programs. Best paced mathematics was included in this category. (29)

In the summer of 1975, the best paced mathematics materials were revised and revitalized under the sponsorship of ESP, utilizing the original teacher protagonist of best paced mathematics. The central theme of this recent

*Another consultant worked with the materials during summer 1973, but his work was not accepted by the school district. (14)

revision was the reorganization of the materials into a "personalized instruction model," essentially in a spiral curriculum arrangement, with skills selectively paced over the twelve year period of instruction. That program continued through the 1977-1978 academic year. (19, 21)* Responsibility for all program revisions was left to the teaching staff at each ESP school site.

Development Associates carried out a substantial examination of the operation of best paced mathematics, accumulating data from classroom observations, teacher interviews, and student progress charts. The report cited favorable classroom conditions, enthusiasm, pride in accomplishment, and relatively stress free conditions during learning (14). Teachers stated they were "pleased with students' progress but felt somewhat unsure about the degree of student retention of learned materials." There was some favorable sentiment expressed concerning the low amount of reading involved, noting, however, that some students who had had difficulty with the standard "new math" books were progressing well. Data showed some statistically significant mathematics gains for several grade levels in ESP schools. (14)

External High School

The Edgewood Adult Performance Level Competency Based High School Diploma Program, commonly called the External High School, was initiated in the fall of 1975.** It was designed as an alternative school to serve dropouts and potential dropouts. Edgewood residents who did not complete high school and are 18 years old, or are 17 and have not attended school for one year, can study for a high school diploma under the University of Texas at Austin plan, modified locally, through independent study and teacher assistance.

The program was conducted by the Family Services Component of the Edgewood School Plan, as a part of its redirection of emphasis from students in school to direct benefits to the community. The program has been jointly funded by the Edgewood District, the Edgewood School Plan (from its National Institute of Education funding), the Bexar County School Superintendent's office (under Adult Continuing Education funding), the San Antonio office of the Economic Opportunity Development Corporation, and state special education (Plan A) funds. It was first conducted in the facilities of the Iglesia Bautista Alta Vista (Alta Vista Baptist Church) and was later moved to the Burleson Elementary School plant annex. (20)

*During the fifth year of the experimental schools program, the staff member primarily involved with the best paced mathematics and its subsequent revisions was hired as the mathematics supervisor by the district. When the district developed its five year plan, the process, management system, and some of the performance criteria and related curricular materials were incorporated into that plan. The combined individual and subgroup approach to teaching mathematics remained a viable part of the new program and the system was set up for computerized diagnosis and prescription for the 1977-1978 school year. The respondents to the questionnaires did not know of these events when they completed the change study instruments used in this study.

**Several unofficial names have been used for the program: Edgewood High School Diploma Plan, Edgewood Master Academy, and Alternative High School.

The program served 137 individuals during the 1975-1976 school year and graduated 22 of these. Only 23 of those enrolled dropped out of the program and the rest continued their work toward the diploma. During the 1976-1977 year, nearly 230 individuals were enrolled and 25 of these graduated in spring 1977.*

The Edgewood board of education officially continued the program for the 1977-1978 academic year in March 1977.* The five professional staff members will continue to be furnished by the Edgewood district, Bexar County Adult and Continuing Education, and the Economic Opportunity Development Corporation.

Cultural Advocacy

Cultural advocacy constituted a major component of the original Edgewood experimental schools design (27), based on the theme of "incompatibility" between an Anglo oriented school system and a Mexican American student body as its primary focus. The purpose of the program was to provide reinforcement of the students' cultural and historical experiences through chosen instructional methods, curriculum design, and staff training activities. Materials developed by the components were to include specific references and/or units on Mexico, Mexican Americans, and San Antonio. Some direct classroom activities were conducted by the component staff, primarily involving Mexican and Mexican American music and folklore.

The internal evaluation needs assessment survey, carried out in early 1974, tended to show that principals, teachers, parents, and students were not in total agreement with cultural advocacy as originally presented. During the deliberations of the intensive planning efforts conducted later that year, some modifications were suggested. One of the activities of making the system compatible with the students' characteristics, instruction and/or class management in the students' home language (Spanish), was given increased impetus through the language dominance assessment instrument study and the subsequent placement of children in the early grades into language usage modules for instruction (28). The cultural advocacy committee also compiled a special report for inclusion in the planning exercises (26).

A final result of the planning efforts, however, was to integrate the work of the cultural advocacy component into the work of all the other components. The one remaining staff member was shortly after transferred to another function within ESP and the component, as such, was left without staff. Language dominance placement of students was not utilized the following school year and the cultural advocacy activities, as integrated into the work of the other components, were difficult to identify. The thrust, at least, was substantially reduced, and appeared to be nearly non-existent the fourth year.

*These facts were not known to the respondents to the questionnaires in the present study as the events took place after the data were collected.

Instrumentation

When the joint work of the Development Associates research team, the technical panel, and the outside consultant had agreed on the model for the study, the general approach, and the treatments to be included, the detailed work on the instrumentation was begun. The definition of the variables and their specification into instrument items was followed by the preparation of the preliminary questionnaire (best paced mathematics), its pretest and revision, preparation of the questionnaires for the other two treatments, and the final administrations.

Definition of Variables in the Model

The four factors included in the model for educational change utilized in this study were defined as follows:

1. Conditions - factors existing within the district at the time that ESP was conceptualized and the initial implementation was begun, that influenced the degree to which district personnel would consider the proposed changes viable and/or desirable. Seven factors were included in this conceptual universe: need, appropriateness, utility, competency of the change agents, understanding of the program, endorsement of district personnel, and likely contribution to enhanced prestige of district personnel.
2. Decisions - the extent to which personnel were involved in making decisions related to the treatments studied within the Edgewood School Plan. Decisions was divided into two dimensions: time, which included past, present, and future reference points; and impact, which included personal involvement in the decision making process and perceived impact of this involvement on the decisions made.
3. Effects - the outcomes or resulting impact of the innovative program. More specifically, this concept encompassed the following types of impact: improved attitudes and achievement of students, improved attitudes of parents, improved teacher attitudes, support for the type of instruction represented by the innovation program and for innovation generally.
4. Support - the extent to which the respondents would favor the continued use and expansion of the innovative program. This factor included continued use of the program in schools now designated as ESP at both the classroom and school levels; expansion of the innovative program to include use by those within the district but outside ESP, e.g., individual teachers, individual schools, the entire district; and recommendations for adoption of the innovative program by schools outside the district.

The first three were included as explanatory to the fourth.

Preparation of the Questionnaires

After the time orientations (past, present, and future) and the content of the items to be included in each variable were decided, a sample questionnaire for the best paced mathematics treatment was prepared. This sample was reviewed by the principal researchers, appropriate revisions

were made, and the questionnaire was discussed with professionals included in the experimental schools program in San Antonio. Changes in wording, particularly on the brief explanatory paragraph for each treatment, were then incorporated. The interviewed personnel expressed the opinion, generally, that the items were understandable and addressed the intended topic.

The best paced mathematics questionnaire, as it was mailed to the respondents, included a special section related to the appropriateness of the instrument and its items. (Appendix A4) While only a few respondents answered this section, their general opinion was that the instrument functioned as intended. Their suggestions primarily concerned the format, length of paper used, and that it was difficult to fit the questionnaire into the envelope provided for the return. These suggestions were taken into account on the last two questionnaires.

After careful face examination of the returns from the first questionnaire, the final instruments for the external high school and cultural advocacy treatments were prepared. The items remained parallel across all three treatments. The wording was slightly modified in the questionnaires sent to each of the sampled groups, appropriately substituting the groups' designations (teacher, principal, board, administration, ESP staff) as needed.

The final questionnaires, then, contained 7 items for conditions, decisions, and effects for all three treatments. Support contained 6 items for best paced mathematics and cultural advocacy but only 4 for the external high school treatment. The latter exception occurred because the nature of that program eliminated certain possibilities of questioning.* All items were graduated on a Likert type scale with values of 5 for high positive (to a very great extent) down to 1 for the negative end (not at all). Conditions, decisions, and effects therefore had total composite score possibilities of from 7 to 35; support from 6 to 30 for best paced mathematics and cultural advocacy, 4 to 20 for external high school. The four variable scores were not aggregated to a total instrument score.

Data Collection

Prior to the administration of the instruments, a letter over the signatures of the district superintendent and the experimental schools program director was sent to each respondent, urging participation in the study and pointing out its importance. A separate, addressed envelope was prepared for each sample respondent, containing a letter of explanation and the name and telephone number of the researcher in charge in case there were questions, the instrument, and a stamped, self addressed envelope for the return. The questionnaires were mailed to the board of education members through the postal service. Those for the staffs in the several plants included were delivered to that facility and placed in the mail boxes of the respondents.

*Since the external high school program did not permit adoption below the district level, questions pertaining to classroom and school adoption were deleted. Three questions were directed toward district expansion and one toward recommended adoption by other districts.

The questionnaires were mailed or delivered as follows:

Best paced mathematics:	second week in February
External high school:	third week in March
Cultural advocacy:	first week in May

Followup letters urging returns were sent three weeks after the initial delivery. Additionally, appeals were channeled through the appropriate district officers, so that announcements could be made in the conduct of the regular school business.

Each questionnaire had been precoded as to position in the hierarchy, office, or school so that they could be properly incorporated into the study. Four instruments were returned with the code clipped from the instrument and they were therefore discarded. Eighteen others were returned with no replies whatsoever. Several respondents lost one of the instruments, called, and were furnished a new copy. A few added comments to the questionnaires, generally noting the study as interesting and hoping they would see the results.

Samples

The levels of system actors were carefully examined for their potential influence on adoption/rejection of a practice. The final choices of levels were made jointly by the research staff, the technical panel, and an outside consultant. Appropriate samples and sampling techniques were then determined by that same group.

Since substantial change decisions and expenditures of monies would be important in the adoption/rejection of the selected practices, the central district management was an obvious inclusion. The board of education members*, the superintendent of the district and his associate and assistant superintendents, were selected. (The associate superintendent for the Edgewood School Plan was excluded from this group and included in the Edgewood School Plan personnel as his influence would presumably be more directly involved with the operations of that program.) The federal programs director was added to central district management since influence from that position could cause incorporation of one or more of the practices into other federally funded projects. These two groups, combined, numbered 12 persons; therefore, 100% of these was sampled.

The Edgewood School Plan had been substantially involved (although each member had not been involved to the same degree) with the three treatments. Additionally, they theoretically had, because of their unique status within the district hierarchy, strong influence on adoption/rejection and more communications possibilities than many other persons. At the time of the survey, they numbered 15 and 100% was included in the sampling plan.

*Two additional members had just been elected to the board of education and felt that the short period in office had not provided them an adequate information base for responding; they were not included in the sample.

The expectations of the experimental schools program was that innovations would be developed, tried out in the six experimental schools, and some would then be adopted by other schools of the twenty-six in the district. A sampling plan that would include representatives from the system was deemed important for assessing probably adoption. Since principals are an important linkage between the district central management and their teachers, they were included. The principals of the six Edgewood School Plan schools were expected to have considerable knowledge about the treatments and their judgments would be important to the study. The four comparison principals, because of their inclusion in the external evaluation plan, were retained in the sample. Further, two elementary and one middle school from the rest of those in the district were randomly selected. Only one other secondary school existed and its principal was included. The total number of principals in the sample was thus fourteen.

Fifty percent of the teachers in the same schools from which the principal sample was constituted, was selected through a stratified random design. Elementary teachers were stratified by grade. The experimental middle school faculty was organized by teaching teams rather than by grade; these were then stratified by team. All other middle school teachers were stratified by grade and subject taught. The high school teachers were selected by subject matter. The teachers totalled 277 and encompassed 105 in the ESP schools, 88 in comparison, and 84 in those remaining, called "other." (Appendix B contains the samples by position, school, and number and percentage responding to each questionnaire.) The total sample of persons in all positions in the system numbered 318 (41 management, 277 operations).

The response rate was generally acceptable. As might be expected, however, the percentage of persons responding diminished progressively from the first questionnaire, best paced mathematics, to the third, cultural advocacy. As indicated in Appendices B1, B2, and B3, the group of respondents with the highest consistent rate of returns was principals (71% to 93%). The greatest fluctuation in return rate was for district administration with 20% response on external high school and 80% on best paced mathematics. Board members evidenced a rather consistent rate of return with a low of 43% on both external high school and cultural advocacy, and a high of 57% response on best paced mathematics. ESP central staff was surprisingly low in the response rate with a low of 40% on cultural advocacy to a high of 66% return on best paced mathematics.

The response rate for teachers was generally highest for those in the ESP schools, a little less for those in the comparison schools, and significantly less, with the exception of the secondary level, for teachers in the other schools. Generally, however, a sufficient response rate was obtained from all three types of teachers that it would appear safe to assume that the respondents were representative of teachers throughout the district.

Data Analysis

Two types of analyses were carried out; the first explored certain psychometric properties of the instrument and the second probed the explanation and prediction of change in the Edgewood district situation. Both were performed on the data collected for the three questionnaires, thus the two sets of analyses were calculated concurrently.

Properties of the Instrument

The item scale scores were summed together to compute a composite index for each of the four variables: conditions, decisions, effects, and support. The internal consistency, or reliability, for each variable was determined by running Pearson correlations between individual items and the composite index score. Only those cases containing no missing data on the items were used in that examination. The correlations were calculated separately for the variables in each of the three treatments being studied.

Support was established as the criterion variable and the other three in the educational change model were then treated as explanatory or predictor variables. Accordingly, a correlation matrix was constructed for these variables for each treatment to determine the extent to which they represented distinct explanatory components. Appropriate tables were constructed with the correlations, their significance levels, and with the means and standard deviations for each treatment studied via the model.

Explanation and Prediction of Change

The data for the educational change study were examined separately for the three treatments: best paced mathematics, external high school, and cultural advocacy. The three explanatory variables of conditions, decisions, and effects were used in the multiple regression analyses, stepwise inclusion, against the criterion variable, support. Thus the explanatory or predictive contributions of each was calculated, in addition to their combined values. The findings were then compared across treatments, especially examining the results through the statistical test for goodness of fit.

For each set of analyses, three individual populations were studied: the total sample respondents, the administration (management), and the teachers alone (operations). It was expected that the perceptions of these two groups would differ on the explanatory variables. Data were also collected on sex, ethnicity, teaching level (elementary, middle, secondary) for teachers only and appropriate analyses were attempted to discover whether the perceptions varied among them.

Limitations of the Study

The examination of the psychometric properties of the instrument prior to the first administration was limited to face validity and reliability considerations furnished through interviews with some sample personnel. More indepth studies into its properties were conducted concurrently with the first administration and then across the three treatments investigated. Limitations of resources precluded carrying out the studies of the psychometric properties of the instrument prior to the actual administrations. Similarly, these limitations also precluded some further statistical analyses that should be done, especially factor analysis.

While the return rates were generally satisfactory, the reductions in some cases prevented analyses that might have added other information important to future studies. These reductions, coupled with the unusual composition of the groups themselves, made examinations by sex, ethnicity, and teaching level impossible because of the number of cases in certain cells or the

wide disparity between cell sizes. Management, for example, included few women and few members of any ethnic group other than Mexican American. Few men were represented in the sample of elementary teachers because few were employed at that level. These compositions, and in a few instances the return rates, made analyses via these variables open to question. An examination of their influence on perceptions, however, was seen as a potentially important factor and the research would have been strengthened if these could have been performed.

CHAPTER IV: RESULTS OF THE INSTRUMENTATION STUDY

The study of the instrument was carried out in three stages. First, the variables selected were done so after an intensive investigation by the research team, the technical panel to the external evaluation, and an outside consultant. Their suggestions and revisions were incorporated into the instrument as it was first formulated.

Second, the items were constructed for each of the variables and these were submitted to samples of the intended audience through interviews. Suggestions for wording changes and other general content modification were noted and subsequently discussed with the team and the outside consultant, resulting in minor changes in the items. The sample of respondents had understood the items as they were written; their suggestions primarily were to aid the future respondents who would need additional information about the treatments in question and a slight expansion of two items since the final items would be answered from mailed out questionnaires. The intent of the items in the four variables was clearly perceived by the sample, a necessary quality in this research.

Finally, the data collected in the three administrations were included in the instrument study. Item to composite (variable) index score Pearson correlations were determined. Additionally, a correlation matrix was prepared for the four variables for each of the studied treatments.

Descriptive Statistics

The means and standard deviations for all the items in each of the instrument applications are presented in Table 1. The inspection of these statistics, conducted as a preliminary analysis only to discover if any unusual results had been obtained, was restricted to the total sample scores.

The patterns of means for the conditions index were remarkably similar across the three treatments, maintaining almost exact proportional relationships. The patterns were also similar for the decisions items but were slightly less regular. Most of the variations occurred within the means for the external high school; even these differences, however, were not great. The effects item means were also very similarly patterned across the three treatments. Too, the means for any item remained fairly stable for the administrations of the questionnaire. The support item means varied in a uniform pattern with external high school the highest, best paced mathematics second, and cultural advocacy the lowest. Even though the differences were not numerically large, the consistency of the difference was impressive. Viewed as a whole, the item means appeared about as expected from the histories of the treatments. No unusual differences appeared.

Table 1: Means and Standard Deviations for Instrument Items by Treatment Administration

ITEM	BEST PACED MATHEMATICS		EXTERNAL HIGH SCHOOL		CULTURAL ADVOCACY	
	Mean	sd	Mean	sd	Mean	sd
A1	3.72	1.04	3.98	1.05	3.51	1.00
A2	3.43	0.99	3.63	1.01	3.35	0.98
A3	3.31	0.92	3.43	0.78	3.43	1.07
A4	3.10	1.05	3.27	0.96	2.94	0.85
A5	2.85	0.98	3.01	0.88	2.66	0.72
A6	2.95	0.92	3.26	0.90	3.04	0.79
A7	2.96	0.92	2.67	1.01	2.74	1.07
B1	1.32	0.74	1.33	0.84	1.43	0.80
B2	1.35	0.78	1.33	0.77	1.35	0.74
B3	1.71	1.00	1.45	0.82	1.42	0.78
B4	1.70	1.01	1.39	0.71	1.43	0.77
B5	2.04	1.16	1.75	0.96	2.00	1.03
B6	1.98	1.14	1.65	0.89	2.05	1.05
B7	1.97	0.94	1.98	1.00	1.81	0.83
C1	2.68	0.85	2.83	0.93	2.65	0.90
C2	2.74	0.97	2.93	1.12	2.65	1.04
C3	2.37	0.90	2.95	0.95	2.53	1.01
C4	2.84	0.96	2.80	0.97	2.68	1.06
C5	2.80	0.94	2.72	1.00	2.74	1.01
C6	2.98	0.97	3.07	1.06	2.91	1.00
C7	2.96	1.03	3.08	1.00	2.86	1.02
D1	3.45	1.17	**	**	3.17	1.04
D2	3.44	1.21	3.54*	1.21	3.17	1.01
D3	3.42	1.20	3.61*	1.12	3.16	1.08
D4	3.22	1.31	**	**	3.14	1.13
D5	3.20	1.31	3.60*	1.21	3.08	1.18
D6	3.17	1.18	3.53*	1.20	3.05	1.13

*These were D1, 2, 3, and 4, respectively, in the external high school instrument. D1 and 2 were not precisely parallel to D2 and 3 in the best paced mathematics and cultural advocacy questionnaires but they approximated the content. D3 and 4 in external high school exactly paralleled D5 and 6, respectively, in the other two instruments.

**Not applicable.

An examination of the composite index scores for conditions, Table 2, indicate that they approached a normal distribution, and thus represented a range of opinions that might be expected for best paced mathematics and cultural advocacy. The distribution for the external high school, however, is somewhat negatively skewed. No pronounced ceiling effect is noted from the three distributions.

The frequency distributions for the decisions index, however, are quite different. (Table 3) All three are positively skewed and show a very pronounced floor effect in the replies. Both the skewness and the floor effect are more pronounced for external high school than for the other two. Essentially, these demonstrate a low amount of perceived participation in the decision making process.

Table 2: Frequency Distribution of Composite Index Scores for the Total Sample by Treatment: CONDITIONS

SCORE	BEST PACED MATH %	EXTERNAL HIGH SCHOOL %	CULTURAL ADVOCACY %
7-8	2.8	1.4	1.6
9-10	0	0	1.6
11-12	.9	1.4	3.2
13-14	1.8	0	0
15-16	1.9	2.8	6.4
17-18	14.0	11.4	4.8
19-20	12.1	10.0	11.1
21-22	19.6	15.7	23.8
23-24	16.8	12.8	17.4
25-26	10.2	17.1	14.2
27-28	9.3	14.3	4.8
29-30	7.5	7.2	8.0
31-32	1.8	2.9	3.2
33-34	.9	2.9	0
35	0	0	0

Table 3: Frequency Distribution of Composite Index Scores for the Total Sample by Treatment: DECISIONS

SCORE	BEST PACED MATH %	EXTERNAL HIGH SCHOOL %	CULTURAL ADVOCACY %
7-8	41.2	48.6	42.8
9-10	21.5	27.2	15.8
11-12	6.5	4.3	11.1
13-14	5.6	4.3	8.0
15-16	5.6	1.4	9.5
17-18	4.7	11.4	0
19-20	3.7	0	4.8
21-22	4.7	0	6.4
23-24	5.6	2.8	1.6
25-26	0	0	0
27-28	.9	0	0
29-30	0	0	0
31-32	0	0	0
33-34	0	0	0
35	0	0	0

The distribution of scores for the effects index approached a normal distribution but showed some positive skewing (Table 4) for best paced mathematics and the external high school treatments. No discernible floor or ceiling was evidenced. The scores for the effects index, as applied to the cultural advocacy treatment, were irregularly distributed although there was a tendency toward normality with some positive skewing. Some polarized effects were noticeable in the distribution.

Table 4: Frequency Distribution of Composite Index Scores for the Total Sample by Treatment: EFFECTS

SCORE	BEST PACED MATH %	EXTERNAL HIGH SCHOOL %	CULTURAL ADVOCACY %
7-8	4.7	4.3	4.8
9-10	2.8	2.9	6.4
11-12	8.4	1.4	1.6
13-14	3.8	6.0	12.7
15-16	5.6	8.6	4.8
17-18	14.9	7.2	9.5
19-20	12.1	10.0	4.8
21-22	15.8	14.3	27.0
23-24	16.8	18.6	9.5
25-26	8.4	5.7	6.4
27-28	2.8	7.2	7.9
29-30	.9	4.3	3.2
31-32	2.8	2.9	0
33-34	0	2.9	0
35	0	0	1.6

The support index for best paced mathematics and cultural advocacy had a potential range of from 6 to 30, with a median of 18. An examination of their index scores (Table 5) shows both to be irregularly distributed and with some fairly evident polarity points. Some ceiling effects could be noted for both treatments' scores on the support index.

The support index for the external high school could range from 4 to 20 with a median of 12. The distribution is negatively skewed with fairly pronounced ceiling effects. Perceptions of positive support were registered by the respondents.

Table 5: Frequency Distribution of Composite Index Scores for the Total Sample by Treatment: SUPPORT

SCORE	BEST PACED MATH %	EXTERNAL HIGH SCHOOL %	CULTURAL ADVOCACY %
4-5	*	10.0	*
6-7	4.7	0	7.9
8-9	4.7	1.4	3.2
10-11	3.7	10.0	3.2
12-13	7.5	18.5	4.8
14-15	5.6	14.3	4.8
16-17	8.4	22.8	3.2
18-19	18.7	7.2	27.0
20-21	5.6	15.7	7.9
22-23	9.3	**	12.6
24-25	12.1	**	12.6
26-27	2.8	**	3.2
28-29	4.7	**	1.6
30	12.1	**	7.9

*Applicable only to External High School.

**Not applicable to External High School; this score had a possible range of 4-20.

The means and standard deviations, shown in Table 6, were surprisingly uniform for the conditions index when viewed across the three treatments; only six-tenths of a point separated the high, best paced mathematics, and the low, cultural advocacy.

The decisions indices for the treatments were less uniform than those for conditions, with 1.3 points separating the high, again best paced mathematics, and the low, external high school. A part of this difference probably lay in the nature of the latter program, one in which it was set up and operated district wide.

Effects, as a composite index, presented a different pattern. External high school, possibly because of the high dropout rate in the district, was perceived as potentially having the greatest positive effect. Nevertheless, the difference among the three was not great, 1.4 points.

The greatest variation occurred among the support index mean scores. Converting the 20 high score of external high school to the 30 top of the other two, gave: best paced mathematics=19.8, external high school=21.5, cultural advocacy=18.8. A 3.7 point difference thus would exist, with the sharpest difference noted so far in the analyses.

Table 6: Composite Index Mean Scores and Standard Deviations for the Total Sample by Treatment

INDEX (Variable)	BEST PACED MATHEMATICS		EXTERNAL HIGH SCHOOL		CULTURAL ADVOCACY	
	Mean	sd	Mean	sd	Mean	sd
Conditions	22.3	4.9	22.2	4.7	21.7	4.8
Decisions	12.1	5.7	10.8	5.0	11.5	4.7
Effects	19.4	5.5	20.4	6.0	19.0	6.2
Support*	19.8	5.8	14.3	4.5	18.8	6.2

*Support scores could range from 6-30 for Best Paced Mathematics and Cultural Advocacy but from 4-20 for External High School; all conditions, decisions, and effects scores had a possible range of 7-35.

Some variations occurred among these descriptive statistics when they were examined by the other variables included in the study. While not presented herein because of the few differences and the volume of the tables, the frequency distributions tended to follow the differences noted among means discussed in the next chapter.

Correlations among the Scores

Two sets of correlations were calculated, separately for the treatments. The first was item to composite index score, thus for each of the variables (indices) in the change instrument. Subsequently, the correlations among the four indices' scores were also produced. In each of these cases, the statistics were part-whole correlations, that is, without each factor's

contribution removed from the calculations. Although this method produces spuriously high r values, the patterns generally give important clues to the interrelationships.

Correlations of Items to Index Scores

The calculated correlations of the conditions items with the composite conditions scores were all high except one, number 7, which was in the upper moderate range. The relationship held true across all three treatments even though some r values varied considerably. Even assuming the probable correction suggested in several statistics texts*, the items would have appeared to contribute reasonably well to the composite conditions index score.

Table 7: Correlation of Index Items to Composite Index Score: CONDITIONS

ITEM	BEST PACED MATHEMATICS		EXTERNAL HIGH SCHOOL		CULTURAL ADVOCACY	
	r	p	r	p	r	p
A1	.82	.001	.72	.001	.76	.001
A2	.80	.001	.83	.001	.81	.001
A3	.77	.001	.66	.001	.84	.001
A4	.74	.001	.76	.001	.77	.001
A5	.72	.001	.74	.001	.68	.001
A6	.79	.001	.79	.001	.71	.001
A7	.59	.001	.59	.001	.61	.001
N	143		117		94	

Item 7, which appeared somewhat lower in correlations with conditions than the others even though uncorrected, was uniformly lower across the treatments. The item probed the perceptions of possible increased prestige that might be derived from the treatments. Apparently some uncertainty was involved; that is, prestige was not universely seen as concomitant to operation of the treatment.

The correlations of the items with the decisions composite index score were high across all three treatments. Again, some variability occurred between treatments but the pattern was surprisingly uniform when viewed generally. (Table 8) Item 7 produced the lowest correlations for best paced mathematics and cultural advocacy but not in the case of the external high school. The items appeared to have functioned as expected.

*See, for example, the discussion in Guilford, J. P. & Fruchter, B. Fundamental Statistics in Psychology and Education. (5th ed.) New York, McGraw-Hill, 1973. pp. 450-457.

Table 8: Correlation of Index Items to Composite Index Score: DECISIONS

ITEM	BEST PACED MATHEMATICS		EXTERNAL HIGH SCHOOL		CULTURAL ADVOCACY	
	r	p	r	p	r	p
B1	.72	.001	.76	.001	.78	.001
B2	.73	.001	.82	.001	.82	.001
B3	.90	.001	.87	.001	.87	.001
B4	.90	.001	.87	.001	.87	.001
B5	.91	.001	.76	.001	.81	.001
B6	.91	.001	.86	.001	.79	.001
B7	.69	.001	.76	.001	.66	.001
N	157		123		105	

The item to effects composite scores were highly correlated and very uniform. No unusual variation was discerned from these preliminary statistics. The items appeared to have contributed well to the index score. (Table 9)

Table 9: Correlation of Index Items to Composite Index Score: EFFECTS

ITEM	BEST PACED MATHEMATICS		EXTERNAL HIGH SCHOOL		CULTURAL ADVOCACY	
	r	p	r	p	r	p
C1	.83	.001	.79	.001	.88	.001
C2	.85	.001	.88	.001	.87	.001
C3	.82	.001	.82	.001	.91	.001
C4	.87	.001	.88	.001	.90	.001
C5	.85	.001	.83	.001	.88	.001
C6	.82	.001	.89	.001	.86	.001
C7	.80	.001	.85	.001	.82	.001
N	146		93		86	

The item score correlations with the support index scores were even higher than those for the previous indices and, again, the pattern was quite uniform. Even with the appropriate correction, these correlations would be high enough to indicate adequate functioning within the index. (Table 10)

Table 10: Correlation of Index Items to Composite Index Score: SUPPORT

ITEM	BEST PACED MATHEMATICS		EXTERNAL HIGH SCHOOL		CULTURAL ADVOCACY	
	r	p	r	p	r	p
D1	.90	.001	.94	.001	.94	.001
D2	.93	.001	.96	.001	.93	.001
D3	.93	.001	.96	.001	.90	.001
D4	.96	.001	.94	.001	.95	.001
D5	.95	.001			.95	.001
D6	.86	.001			.92	.001
N	147		125		99	

Despite the weakness of these part-whole correlational measures, when viewed for pattern and probable corrections that would occur with item analyses, the items appeared to have functioned well. No one item seemed to have had an unusual or counter effect on the results.

Correlations among the Index Scores

Even viewing the results with caution because of the part-whole calculations, the correlations among the indices (variables) in the educational change model provided some important insights into their functioning in this particular case. The calculations were made separately by treatment since the situations of each were deemed to be potentially distinct.

Decisions showed a low correlation with the other variables in all three treatments. Even considering that these are spuriously high, they demonstrated a great deal of independence from the other variables. While this was expected in the case of conditions and effects, that is, these were postulated as discrete factors within the process, it was supposed that decisions might correlate somewhat higher with support since this latter index was posed as the criterion variable. Decisions was about as independent of support as any of the others. (Tables 11, 12, 13)

Table 11: Correlation Matrix and Significance Levels for Model Variables: BEST PACED MATHEMATICS (N=117)

VARIABLE	DECISIONS r/p	EFFECTS r/p	SUPPORT r/p
Conditions	.21 (.02)	.60 (.001)	.72 (.001)
Decisions		.23 (.006)	.27 (.001)
Effects			.62 (.001)

Table 12: Correlation Matrix and Significance Levels for Model Variables: EXTERNAL HIGH SCHOOL (N=83)

VARIABLE	DECISIONS r/p	EFFECTS r/p	SUPPORT r/p
Conditions	.13 (n.s.)	.73 (.001)	.74 (.001)
Decisions		.22 (.02)	.24 (.02)
Effects			.72 (.001)

Some overlap would be expected from the moderate correlation between conditions and effects. Even making some speculations about the corrections from these part-whole correlations, the two would likely be moderately related. They were apparently not as separate and distinct as had been supposed by the authors of the model.

The theoretical conceptualization had presupposed some interrelationships between conditions and effect, and support. That expectation was borne out in the correlations. Again, even with some correction from the part-whole statistics, some overlap was expected and found in the calculation.

Table 13: Correlation Matrix and Significance Levels for Model Variables: CULTURAL ADVOCACY (N=77)

VARIABLE	DECISIONS r/p	EFFECTS r/p	SUPPORT r/p
Conditions	.11 (n.s.)	.72 (.001)	.73 (.001)
Decisions		.30 (.004)	.16 (n.s.)
Effects			.64 (.001)

Summarizing this part of the instrument study, two important features are noted. One, the decisions index was highly independent of the other factors, even including support, where some relationship had been expected. Two, some overlap, not proposed, was discovered between conditions and effects; some correlation between conditions and support, and effects and support were expected and were borne out. These apparent overlaps were higher than would be desirable, even presuming them to be somewhat lower had item analyses, not part-whole correlations, been performed.

Summary of the Instrument Study

A pretest of the items had shown excellent comprehension by the sample utilized. The four variables, when viewed in the context of the items, were perceived accurately. Discussions with the interviewees showed no unusual problems with the instrument.

A special evaluative section was utilized with the best paced mathematics questionnaire to provide input to the functioning of the questions and the instrument as a whole. The respondents were nearly unanimously agreed that both had functioned appropriately.

An examination of the item means and standard deviations, as they resulted from the administrations to the samples for the three treatments, showed no unexpected variations. Differences were generally as anticipated from the preliminary studies.

The frequency distributions of the scores on the four indices likewise produced few surprises. This was particularly true for conditions and effects, both of which approached a normal distribution. It had been presumed that decisions would present the most skewed distribution and it did; the degree of that skewness, however, was more than anticipated. The respondents had perceived even less participation in the decision making process than field observations would have led the researchers to believe. Some polarity was expected in the support index but the total sample presented a nearly normal range for best paced mathematics and the external high school. The supposition was realized, however, in the case of cultural advocacy, even though the degree of polarization was somewhat less pronounced than anticipated.

The conditions and effects index means were quite uniform across the three treatments. No important variation had occurred. More difference was found in the decisions index means, apparently due to the nature of the separate but district wide installation of the external high school. Less participation in the decision making process was perceived for it. High support was evidenced for the external high school perception score, substantially higher than for either best paced mathematics or cultural advocacy.

The index items presented mostly high part-whole correlations with the index scores. The patterns were quite uniform across treatments. Even with the weakness of such calculations, the items appeared to have functioned about as postulated.

To determine the interrelationships among the variables, part-whole correlations were calculated. Again, even with the caution that must be used with such statistics, patterns emerged. Decisions was very independent from the other three and more so from support than the researchers had expected since the latter was the criterion variable for the study. Conditions and effects correlated about as proposed with support, indicating some overlap; perceived conditions, effects, and decisions were theorized to influence perceived support. Unexpectedly, however, some overlap between conditions and effects was discovered. While this was not extreme, it was greater than desirable for discrete factors within the change model.

Generally, the instrument had functioned about as expected. Previous research of this type had often shown perceived conditions to have a considerable influence on change. Effects had sometimes been important although they were frequently secondary to conditions. Decisions have often been found to be less predictable in change studies and the instrumentation used in this research bore this out. No unusual deficiencies were discovered in the instrument or its four factors; the items had functioned quite well. Considerable confidence in the instrument could be inferred from even these preliminary results.

CHAPTER V: THE EXPLANATION AND PREDICTION OF CHANGE

The educational change model adopted for the present research was designed to facilitate the study of representative change through the perceptions of the system actors about the events and processes involved. Preliminary analyses were performed to discover which of the demographic, primarily school related, characteristics accounted for differences of opinion about the change process. Although there were a number of differences found (presented in a later section), none of these was consistent as an explanatory variable except the major division of the sample personnel, management (board, district administration, ESP staff, and principals) and operations (teachers). The analyses are therefore presented primarily in that context: total, management, and operations samples*.

The three treatments studied via the model (best paced mathematics, external high school, and cultural advocacy) were chosen because they represented distinct histories of change in the Edgewood School Plan and because they appeared to have differing potentials for adoption by the Edgewood Independent School District. The results from the analyses of these three, then, were expected to provide important examples of the change process. Each was analyzed separately and subsequently, cross treatment examinations were made.

Best Paced Mathematics

Reiterating the setting briefly, best paced mathematics began as a small trial operation the first year, was then expanded in both scope and sequence the following year and applied to larger groups of students. Further modification in the approach and methodology was carried out and the project was incorporated into all the middle and high school mathematics classes and to a few elementary classes. A later revision added subgroup work to the largely individualized approach and the treatment was expanded still further through the Edgewood School Plan mini-system. Some statistically significant gains were found in some of the grades where the project was being implemented.

The results of the multiple regression analyses, conducted to discover explanatory and predictive characteristics, are presented in Tables 14, 15, and 16 for the total sample, management, and operations, respectively. Inspection of these tables reveals that, regardless of the referent group - the total sample, management alone, or teachers alone, the three predictor variables included in the model of educational change account for roughly 60% of the variance in the criterion variable, support. In addition, a single predictor variable, conditions, accounted for 52 to 61% of the total variance in support depending on the portion of the school system being sampled.

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*The means and standard deviations for the variables, by treatment, were presented for the total sample in Table 6; those for management and operations are included in Table 23.

Table 14: Regression Summary Table, Total Sample: Best Paced Mathematics

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.72	.53	.53	.74
Effects	.76	.58	.05	.34
Decisions	.77	.59	.01	.11

*Listed in order of loading, stepwise inclusion.
$F_{3,113}=54.147$; $p<.001$.

Table 15: Regression Summary Table, Management: Best Paced Mathematics

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.78	.61	.61	.77
Decisions	.79	.62	.01	.12
Effects	.79	.62	.00	.07

*Listed in order of loading, stepwise inclusion.
$F_{3,6}=3.33$; $p<.05$, n.s.

Table 16: Regression Summary Table, Teachers: Best Paced Mathematics

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.72	.52	.52	.71
Effects	.76	.59	.07	.39
Decisions	.77	.59	.00	.05

*Listed in order of loading, stepwise inclusion.
$F_{3,101}=48.978$; $p<.001$

Although the small number of respondents in the managerial sample cautions against over interpretation of the results of this analysis, it is worth noting that a reversal of the importance of decisions and effects as explanatory variables occurred between management and operations. As indicated in Tables 15 and 16, decisions appeared as more important to those in managerial positions, while effects occupied a more important role in explaining support on the part of operations.

Furthermore, while the goodness of fit of the overall regression equation, as indicated by the F ratio, was significant at the .001 level for both the system sample as a whole and for operations, it was not significant for management. This would tend to suggest that, in the case of the best paced mathematics treatment, some other factors external to those included in the educational change model employed may also have contributed to the

prediction of support for incorporation. For operations and the school system viewed as a whole, however, the model seemed to be adequate for both predicting and explaining support for incorporation of best paced mathematics treatment.

External High School

The external high school project, relatively new in the Edgewood experimental program and district, was designed to aid students who had dropped out of the regular schools to complete a high school diploma through mostly individualized work through the Adult Performance Level materials. By the time the questionnaire for this treatment was distributed, April 1976, the project appeared to be in stable operation, and the administration expected some graduates to complete the work by the end of May.

The results of the analytical studies of the model variables, as they related to the external high school program, are displayed in Tables 17, 18, and 19. They indicate that for the school system as a whole, the three explanatory variables in the change model accounted for 63% of the variance in support, with conditions alone accounting for 55% of the variance in that criterion variable. For the separate management and operations samples alone, however, both the total amount of variance explained by the three variables, and the single variable accounting for the greatest proportion of the variance in support, differed. Conditions explained a sizable 66% of the support variance for management, while decisions added another 15%. Effects accounted for only a negligible additional portion of the variance, with the three together totalling to an impressive 81% of the variance in the criterion variable.

Table 17: Regression Summary Table, Total Sample: External High School

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.74	.55	.55	.45
Effects	.79	.62	.07	.26
Decisions	.79	.63	.01	.09

*Listed in order of loading, stepwise inclusion.
$F_{3,79}$=45.086; p<.001.

Table 18: Regression Summary Table, Management: External High School

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.81	.66	.66	.93
Decisions	.90	.81	.15	.24
Effects	.90	.81	.00	.09

*Listed in order of loading, stepwise inclusion.
$F_{3,9}$=13.177; p<.01.

Table 19: Regression Summary Table, Teachers: External High School

Variable*	Multiple R	R^2	R^2 Change	B
Effects	.74	.55	.55	.33
Conditions	.80	.64	.09	.39
Decisions	.80	.64	.00	.03

*Listed in order of loading, stepwise inclusion.
$F_{3,66}=38.458$; $p<.001$.

From the operations perspective, however, effects was the single most important explanatory variable, accounting for 55% of the variance in support. While conditions explained an additional 9% of the variance, decisions contributed virtually none of the remaining variance in the criterion variable. The three explanatory variables together accounted for 64% of the variance, according to the teachers' perceptions, in support for the external high school, 17% less of the variance than these model variables contributed in the management sample.

The values of the F ratios reported in Tables 17, 18, and 19, indicated that, for this treatment, the goodness of fit of the regression equation, based on variables in the change model, was highly significant. This was true whether viewing change from the perspective of the school system as a whole or from the separate vantage points of management and operations.

Cultural Advocacy

This treatment, solidly described in the funding document of the Edgewood School Plan, was expected to contribute special significance to the curricular materials and the instructional process in this experimental program. Its activities, separately and jointly with those from the other components, were to provide the linkage between the primarily Mexican American student body needs and experiences, and the formulated treatments. Some implementation was carried out in the first two years of the project and then just prior to the present change study, was integrated into the work of the other components of the Edgewood School Plan rather than remaining a distinct component of action.

The analyses for the cultural advocacy treatment are presented in Tables 20 (total sample), 21 (management alone), and 22 (operations alone). These tables show marked differences in the amount of explained variance attributable to the model variables when looking at the school system (total sample) as a whole, and at the samples for management and operations separately. While the explanatory variables accounted for 56% of the variance in the criterion variable, support, for the total system sample, and 62% for the operations sample, they accounted for only 20% of the variance in support for the management sample. Conditions emerged as the single best explanatory variable for all three samples. It explained only 19% of the variance in support from the managerial perspective, while accounting for 58% in support for the incorporation of the cultural advocacy treatment from the teacher (operations) perspective.

In addition, the values of the F ratios, reflecting the goodness of fit of the regression equations, indicated that in the case of cultural advocacy, a change model based on conditions, decisions, and effects, was predictive of support for incorporation of the treatment from the viewpoint of the total system sample and teachers only. It was not an adequate predictor model when the managerial component of the system was used as the referent group.

Table 20: Regression Summary Table, Total Sample: Cultural Advocacy

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.73	.53	.53	.73
Effects	.75	.56	.03	.23
Decisions	.75	.56	.00	.04

*Listed in order of loading, stepwise inclusion.
$F_{3,73}=31.271$; $p<.001$.

Table 21: Regression Summary Table, Management: Cultural Advocacy

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.44	.19	.19	.64
Decisions	.45	.20	.01	.08
Effects	.45	.20	.00	.06

*Listed in order of loading, stepwise inclusion.
$F_{3,10}=0.841$; $p<.05$.

Table 22: Regression Summary Table, Teachers: Cultural Advocacy

Variable*	Multiple R	R^2	R^2 Change	B
Conditions	.76	.58	.58	.72
Effects	.79	.62	.04	.27
Decisions	.79	.62	.00	.01

*Listed in order of loading, stepwise inclusion.
$F_{3,59}=31.965$; $p<.001$.

Comparison of Findings Across Treatments

A review of the findings for each of the three ESP treatments investigated revealed some interesting similarities and differences. First, the total amount of variance in the criterion variable accounted for by the three variables in the change model remained remarkably stable across treatments for both the total system and operations samples, expected since operations made up a high proportion to the total. The total variance explained for the full system sample varied from a low of 56% in the case of cultural

advocacy, to a high of 63% in the case of the external high school treatment. Similarly, the total variance in support explained for the teacher sample varied from a low of 59% in the case of best paced mathematics, to a high of 64% for the external high school. By the same token, the significance of the goodness of fit of the regression equation for predicting support, the criterion variable, based on these explanatory variables, was .001 for both samples.

On the other hand, the total amount of variance in support explained by the model variables for the management sample, differed dramatically across treatments. In the case of cultural advocacy, the model variables accounted for only 20% of the total variance in management support for incorporation of the treatment; it accounted for 62% of the total variance for best paced mathematics and 81% of the variance in support for the external high school program. Furthermore, a test of the goodness of fit of the regression equation for predicting support on the basis of the model variables was significant only for the external high school treatment.

Second, in eight of the nine analyses performed on the various school system samples, conditions emerged as the best explanatory variable. The only exception occurred for the teacher sample on the external high school treatment, in which instance effects exchanged places with conditions as most explanatory. It will be recalled, however, that the variables of effects and conditions were very highly correlated for this treatment, with r equal to .73.

Third, for all three treatments, the importance of effects and decisions in accounting for the variance in support, the criterion variable, was reversed for the management and teacher samples. Decisions consistently ranked before effects in explanatory importance for personnel in a management position; effects consistently ranked above decisions in explanatory importance for the teachers.

Finally, the treatment that consistently elicited the lowest amount of explained variance from the model was cultural advocacy, while the treatment that consistently elicited the highest amount of explained variance from the model was the external high school program. Best paced mathematics occupied an intermediate position, closer to that of the external high school program than that of cultural advocacy. However, the only treatment for which the goodness of fit of the regression equation was significant for all sectors in the school system (total. management, and teachers) was the external high school program.

These same findings are elucidated from an examination of the means of the four variables for each of the treatments when displayed by management and teachers. (Table 23) The most noticeable difference is in the perception of decision making between management and teachers. In all three treatments, management was substantially higher.

A second observation from the table is that management and labor did not differ much on the conditions and effects of the best paced mathematics and external high school treatments. The means were similar. This was not the case for cultural advocacy, however; teachers perceived conditions and effects more "favorably" than did management.

Table 23: Means and Standard Deviations for the Composite Indices, Management and Operations, by Treatment

VARIABLE/ SAMPLE	BEST PACED MATH Mean	sd	EXTERNAL HIGH SCHOOL Mean	sd	CULTURAL ADVOCACY Mean	sd
CONDITIONS						
Management	23.90	4.95	23.31	3.99	19.93	3.38
Operations	22.17	4.92	23.24	4.89	22.05	5.03
DECISIONS						
Management	17.80	6.65	15.08	7.16	13.43	4.42
Operations	11.55	5.29	10.07	4.15	11.05	4.69
EFFECTS						
Management	19.50	4.70	19.46	5.27	16.29	4.61
Operations	19.36	5.57	20.56	6.18	19.62	6.33
SUPPORT						
Management	23.50	5.58	22.62*	4.31	17.50	5.39
Operations	19.47	6.81	24.21*	4.58	19.05	6.40

*These means are based on only four items for the external high school and the values shown converted to approximately the same scale as for the other two treatments; the original means were management = 15.08, operations = 16.14.

The support index means presented a varied pattern. Management was substantially higher in the support of the best paced mathematics program than were teachers. Management was less supportive, however, of the external high school and cultural advocacy than were teachers. The indices for support, nevertheless, were also indicative of the general management position in that there were considerable differences between the means for the first two treatments, which were still functioning, and the third, which had nearly disappeared; the management means were: mathematics=23.50, external high school=22.62 (converted to the equivalent scale of that index for the other treatments), and cultural advocacy=17.50. A six point difference separated the high and low means.

Viewing the results both from the results of the regression analyses and the inspection of the means, across the three treatments, showed:

- Good explanatory powers from the model for the total and teacher samples.
- The model did not function perfectly for the management sample in every case but the differences were not unexpected.

Conditions, as with much of the sociological research, emerged as the most predictive of the variables included in the model. Decisions and effects were reversed, as a generality, between management and operations.

Essentially, the analyses "predicted" that the external high school would be adopted into the district system, and that best paced mathematics appeared to be strong enough to survive. Cultural advocacy showed the least strength of the three treatments studied.

Analyses by other Characteristics

The researchers collected data on several other characteristics of the respondents, besides the division of management and teachers, that were expected to have some explanatory value to the results. As previously explained, the compositon of some of these as they existed in the district, precluded meaningful analysis because of the very small number in some of the cells.

Two groups that remained large enough for analysis are also not presented because they were nearly synonymous with groups formed on the basis of other characteristics. Some literature had postulated more "favorable" perceptions by persons who were more familiar with the change being studied. The respondents in the familiar/not familiar dichotomization in the present research, defined as fairly direct knowledge about the treatment in question, coincided almost exactly with the ESP and non-ESP divisions and the means for the two were nearly identical. Secondly, the teacher samples were large enough to have been broken down by level of instruction (elementary versus combined middle and secondary) by sex. However, the elementary group was nearly all female and the combined middle/secondary group contained nearly all the males. Sex was therefore confounded in the samples and the results are not included.

The means of three groups, by characteristics, model variable, and treatment are displayed in Table 24. Inspection of this summary table reveals, first, that no characteristics' mean consistently differed across the three treatments. In some cases the means are alike; in others, such as instructional level, they are sometimes high and other times low. That is, none was pervasively explanatory of the results obtained.

When individual treatments are examined, however, two differences do appear:

1. The Mexican American teachers were more "favorable" toward cultural advocacy than were non-Mexican Americans.
2. Teachers in the ESP schools were more "favorable" toward cultural advocacy than were those in the other schools.

Since the proportional representation of Mexican American teachers was nearly alike in both the ESP and non-ESP schools, it appeared that the results by both characteristics were real. (Tests for significance were not performed because of the inconsistency of the results across treatments.) There was also a numerical tendency, but not absolute and probably not significant, for the teachers in the ESP schools and the Mexican Americans to be slightly more "favorable" toward the external high school. The reverse can be observed, though, for the best paced mathematics treatment, where non-ESP and non-Mexican American teachers were the same or higher than their counterparts.

In summary, the analyses by group characteristics, other than management and operations, produced few important results and these were not consistent across treatments. Cultural advocacy appeared to be more favored by the ESP and Mexican American teachers.

Table 24: Summary of Treatment and Variable Means by ESP and Non-ESP Schools, Ethnic Groups, and Levels of Instruction

VARIABLE	BEST PACED MATH	EXTERNAL HIGH SCHOOL	CULTURAL ADVOCACY
CONDITIONS			
ESP schools	21.34	24.53	22.45
Non-ESP schools	23.19	21.72	21.44
Mexican American	21.83	24.05	23.14
Non-Mexican American	22.50	22.82	21.85
Elementary	20.57	24.15	22.25
Middle	23.90	23.70	22.70
Secondary	23.00	21.88	21.74
DECISIONS			
ESP schools	12.22	9.55	12.03
Non-ESP schools	10.73	10.69	9.56
Mexican American	11.31	10.68	11.68
Non-Mexican American	11.57	10.00	10.12
Elementary	13.41	9.31	10.88
Middle	10.40	9.50	11.90
Secondary	10.19	11.38	10.82
EFFECTS			
ESP schools	19.20	20.95	20.26
Non-ESP schools	19.56	20.09	18.64
Mexican American	19.46	20.82	21.45
Non-Mexican American	19.35	19.78	18.65
Elementary	18.57	21.85	20.75
Middle	20.90	20.05	19.30
Secondary	19.47	19.58	18.71
SUPPORT			
ESP schools	18.85	22.77*	20.00
Non-ESP schools	20.23	19.37*	17.60
Mexican American	19.42	21.27*	21.55
Non-Mexican American	19.46	20.41*	17.96
Elementary	18.30	22.68*	19.63
Middle	20.90	21.45*	19.20
Secondary	20.00	19.44*	18.57

*In this table these are converted values from the 20 point maximum for this treatment to the 30 point scale of the other two; the original values, in the order they appear in the table, were: 15.18, 12.91, 14.18, 13.94, 15.12, 14.30, 12.96.

Summary of the Explanation of Change Results

Three experimental program treatments, each with different histories, were examined via the educational model. The results of the regression analyses performed on the perception index scores from the questionnaires showed very strong indications for survival/adoption of the external high school project, quite strong indications for the survival/adoption of the best paced mathematics, and suggested that the cultural advocacy project, already severely diminished in function, would likely continue its decline.

The predictive qualities of the model were high for the total sample and the teachers, with the conditions index the single most powerful, and, apparently sufficiently so, for the adoption/rejection of the three treatments. The goodness of fit measure was highly significant for the functioning of the model in the analyses of the external high school treatment. The perceptions of the management subsample, however, did not function in exactly the same way for all treatments, and for this group, the decisions index was the most powerful for one treatment, the cultural advocacy project.

Examination of the means of groupings made via other characteristics showed inconsistent results across the four indices and the three treatments. Regression analyses were, therefore, not performed. Two sets of characteristics appeared to differentiate quite clearly on one treatment but not the other two. Cultural advocacy was perceived much more "favorably" by teachers in ESP than in non-ESP schools, and more by Mexican American than non-Mexican American teachers. Instructional level (elementary, middle, secondary) did not appear to have discriminatory functions.

CHAPTER VI: DISCUSSION AND IMPLICATIONS

A model for the explanation/prediction of change was constructed, primarily on the basis of sociological research, for the study of representative treatments within an experimental schools program. The model utilized three explanatory variables - conditions, decisions, and effects - and a criterion variable - support. These were measured through the perceptions of the actors in the school system. A district wide sample was drawn on a stratified random basis and within this, two subsamples were identified - management and operations (teachers).

The three treatments selected for study represented considerably differing experiences within the experimental program. An individualized/subgroup approach best paced mathematics project had begun early in the program's life, continued with some modifications through the time of the change study in a substantial expansion through the schools. An alternative education project for high school dropouts, the external high school, began in the program's fourth year, had only a few months of operation but was showing considerable strength in the number of students it was serving and in the publicity received. The third treatment, cultural advocacy, had received primary attention in the experimental program's funding document, had been initiated early in the life of the program, but had suffered loss of component status in the months just preceding the present research.

Some provisional studies of the instrumentation were conducted during its formulation stage and then concurrently with the administrations of the questionnaires to the sample. Item part-whole correlations and the interrelationships among the mean scores of the four variables were calculated. The explanation of change analyses used regression analyses with stepwise inclusion and goodness of fit. Preliminary analyses via the means for groupings based on other characteristics were also conducted.

The Model

The results of the investigation, both in the preliminary analyses of the instrument itself and in the analysis of the explanation of change, suggested the following conclusions:

1. They indicated that the model for explaining educational change utilized in this study did account for a sizable proportion of the total variance in the criterion variable, support, when considering the perspective of either a school system as a whole or of the operations (teachers) component of the organizational hierarchy within that system.
2. The findings revealed that the model was particularly sensitive to differences in perception between the managerial and teacher levels in the organizational hierarchy. This was true with respect to the differing amounts of explained variance in the criterion variable, the differing importance of the decisions and effects variables, and the difference in the significance of the goodness of fit of the regression equation for predicting management and teacher support for treatment incorporation from the explanatory variables.

3. The findings also revealed that the model was sensitive to differing system responses to diverse change treatments within the same innovative framework.

In general, then, the researchers concluded that the educational change model proposed was functional in this kind of setting. Like the sociological research on which it was mostly based, the study indicated that perceived conditions about the need for a proposed change is the single most powerful explanatory variable in such an analysis. For most groups in a system, apparently, participation in the decision making process and the perceived effects of the project to be studied, generally have less influence on adoption/rejection than do conditions. One case of high effects values was found but this was in conjunction with an even stronger variable change in which another factor, management decision making, was crucial.

An important exception was also found in the present study. The findings suggested that when a proposed project transcends the participation of most of the systems actors, and when resources and approval are more vital to its success/failure than is perceived general support, the decision making process becomes a very critical element and has more explanatory power than the perceived conditions of need for the innovation.

The Explanation of Change

The experimental program treatments were investigated during the fourth of a five year life span of the program. While some indications of strength or weakness of the studied treatments were already apparent, neither the researchers nor the respondents to the questionnaires possessed substantive knowledge of the eventual fate of those treatments. At the time of the writing of this report, however, a year and a few months later, the district had made some definitive and some tentative decisions about their adoption/rejection.

. The analyses of the data indicated very strong possibilities that the external high school project would be adopted.

In March 1977, the school board officially adopted the project for the 1977-1978 academic year and approved a budget for its operation, independent of the June 1977 termination of the experimental program. The project's staff was confirmed to positions within its structure and the joint funding of the project with two cooperating agencies was retained. The model had predicted the probability of this action.

. The results of the study showed strong possibilities for the continuation of the best paced mathematics project.

In late 1976, the change agent chiefly responsible for the continued improvement and expansion of the best paced mathematics project was promoted to district supervisor of mathematics by the board. Since that time, his work with other mathematics teachers in the district appear to indicate that the management system, the individualized/subgroup approach, some of the materials themselves, and the general process will be adopted into other schools in the district. A computerized diagnostics system was being set up for fall 1977-1978 operation. The strength of the results of the model analyses had predicted the probability of these outcomes.

. The investigation results suggested that the cultural advocacy project, already somewhat diminished in its operation, was unlikely to be continued.

At the time this report was prepared, June 1977, the experimental program was in its last month of operation. Although some of the objectives included in the cultural advocacy component documents had been at least partially incorporated into some of the existing curricular materials, and at least one instrument relating to cultural relevancy, language dominance, was still being considered, no outright adoption of distinctly cultural advocacy produced products nor of the project as such, had occurred. The perceptions of the system actors, as resulted from the analyses of the data, suggested that adoption would not be likely, and this appeared largely confirmed.

Utility of the Study

Although limited in that it examined only three experimental schools treatments, this investigation appeared to have a substantial utility for both researchers and practitioners. The instrumentation is relatively simple, the data collection not unduly complicated, and the analyses are not unusually expensive. With some assistance from an experienced researcher, a school district could make appropriate use of the model in ascertaining present and probable future support for an innovation in place.

The findings of this study suggest that when an innovation depends primarily on operations (teachers in the case of a school district), an analysis of the perceived conditions of need for the innovation would be sufficient to predict its probable outcome. On the other hand, when the success of an innovation depends mostly on management for resources and approval and when the operations personnel participate little in its functioning, and thus contribute minimally to its success, the perceived decision making and support of management are the most important variables to be considered.

Statistically, it is possible to hypothesize that when the amount of variance in the criterion variable, support, as explained by the model for the managerial sample is minimal, and when the goodness of fit of the regression equation for predicting support for incorporation is not significant for management, the eucational change treatment under investigation is not likely to be incorporated into the school system regardless of the views of the operations personnel. Conversely, when the amount of variance in the criterion variable explained by the model for the managerial group is high, and the goodness of fit of the accompanying regression equation is statistically significant, the educational change treatment under consideration is likely to be incorporated. Agreement by management and operations on support, along with statistical significance, appears to create an even stronger likelihood of adoption of the innovation.

One element not included in this investigation of the adoption of change was the time in the project's life when the research is most likely to indicate the probable outcomes. This merits investigation in the future. While mostly speculative, the results of this and other investigations by the research team for the present study, indicated that at least in some cases, the model could be applied very early in the life of a project. The external high school project had existed less than a calendar year. Perceptions related to cultural advocacy were measured at about 18 months into the experimental program's life and the results were not essentially

different from those found in the present study. At about the same time, but approximately one year after the best paced mathematics program was established, the principals and teachers demonstrated relatively strong support for that treatment. Studies by the internal and external research tems of the perceptions of board members, the district administration, teachers, parents, and students raised strong questions about the viability of some elements within the cultural advocacy goals. The combination of these findings, then, suggest that except in very complex treatments, it is probable that adoption/rejection can be determined early, perhaps at about 9-12 months of system experience with a treatment.

In conclusion, the findings from the present research, combined with those of studies using similarly based or conceived models, appeared to give fairly strong evidence that:

- change can be explained/predicted through an adequate study of the perceptions of a system's actors some time before adoption/rejection has occurred.
- the model adapted for the present research is powerful enough in its discriminatory qualities to merit consideration for the study of change.

Additional studies into the psychometric properties of this instrumentation need to be conducted, particularly factor analysis, since some overlap was found between two of the explanatory variables, conditions and effects. Increasing the independence of the two, or perhaps eliminating the effects variable, might greatly strengthen the model.

Nevertheless, the model and its accompanying instrumentation functioned well, even considering the limitations. The subsequent events related to the three treatments under investigation substantiated the findings and gave considerable credence to this approach to the study of educational change.

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APPENDIX A

TEACHER QUESTIONNAIRES FOR THE EDUCATIONAL CHANGE STUDY*

*The questionnaires for the other positions in the hierarchy were identical to those of teachers except that the appropriate position term was substituted for teachers.

A1: BEST PACED MATHEMATICS

The following questions focus on the Best Paced Math Program developed by the Edgewood School Plan. As used in this questionnaire, Best Paced Math refers to the individualized continuous progress approach (including the present spiral curriculum) to math instruction specifically utilized by the Edgewood School Plan.

The questionnaire is divided into five sections. In this first section, please indicate your perceptions about conditions existing at the time ESP was initiated by placing a check in the appropriate box. These questions may be answered either on the basis of your direct or indirect experience with the program. Please check only <u>one</u> box per question.

		a very great extent	a considerable extent	some extent	a very little extent	not at all
A. 1.	To what extent do you believe there was a need for the best paced math program in the Edgewood Schools at the time the Edgewood School Plan was initiated.	☐	☐	☐	☐	☐
2.	To what extent do you believe best paced math was appropriate for use in the Edgewood Schools at the time the Edgewood School plan was initiated.	☐	☐	☐	☐	☐
3.	To what extent do you believe best paced math would significantly increase students' math achievement at the time the Edgewood School Plan was initiated.	☐	☐	☐	☐	☐
4.	To what extent do you believe ESP central staff was competent in initiating and/or implementing the best paced math program at the time the Edgewood School Plan was initiated.	☐	☐	☐	☐	☐
5.	To what extent do your belive participating teachers understood best paced math and its implementation in ESP schools at the time the Edgewood School Plan was initiated.	☐	☐	☐	☐	☐
6.	To what extent do you believe ESP teachers endorsed the best paced math program at the time the Edgewood School Plan was initiated.	☐	☐	☐	☐	☐
7.	To what extent do you believe participating teachers felt that the implementation of best paced math would improve their status in the district at the time the Edgewood School Plan was initiated.	☐	☐	☐	☐	☐

Think now about the decision making process related to the best paced math program. Please pay particular attention to the time frame suggested in each question, e.g., past, present, future.

		a very great extent	a considerable extent	some extent	a very little extent	not at all
B. 1.	To what extent were you personally involved in the initial decision making process to implement best paced math?	☐	☐	☐	☐	☐
2.	To what extent did your own personal input have an influence on the actual decision made at that time?	☐	☐	☐	☐	☐
3.	To what extent are you personally involved in the present decision making process regarding implementation of best paced math?	☐	☐	☐	☐	☐
4.	To what extent does your own personal input have an influence on actual decisions currently being made regarding best paced math?	☐	☐	☐	☐	☐
5.	In the future, to what extent will you probably be personally involved in the decision making process about continuing the implementation of est paced math?	☐	☐	☐	☐	☐
6.	In actual practice, to what extent will your own personal input influence future decisions regarding implementation of best paced math?	☐	☐	☐	☐	☐
7.	In terms of decisions regarding best paced math, to what extent do <u>you and other teachers</u> have actual influence in relation to the influence of other groups in the district?	☐	☐	☐	☐	☐

Now, please turn your attention to the effects or outcomes the ESP developed best paced math program had on various persons or groups in the district. Answer these questions either on the basis of your direct or indirect experience with the program.

		a very great extent	a considerable extent	some extent	a very little extent	not at all
C. 1.	To what extent has student math achievement increased because of the best paced math program?	☐	☐	☐	☐	☐
2.	To what extent has student attitude toward math improved through the use of best paced math?	☐	☐	☐	☐	☐
3.	To what extent have parents' attitudes toward school improved because of their children's involvement in the best paced math program?	☐	☐	☐	☐	☐
4.	To what extent has teacher support of individualized instruction in math increased because of the best paced math program?	☐	☐	☐	☐	☐
5.	To what extent has teacher attitude toward students improved through use of the best paced math program?	☐	☐	☐	☐	☐
6.	To what extent has the Edgewood administration's support of individualized instruction in math increased because of best paced math?	☐	☐	☐	☐	☐
7.	To what extent has the Edgewood administration's general support of innovation increased because of best paced math?	☐	☐	☐	☐	☐

Consider now your attitudes concerning the continuation and expansion of the best paced math program developed by ESP. Please pay particular attention to the persons or groups suggested in each question, e.g., individual teachers, individual schools, individual districts.

		a very great extent	a considerable extent	some extent	a very little extent	not at all
D. 1.	To what extent would you support continued use of the program by individual classroom teachers who now use it?	☐	☐	☐	☐	☐
2.	To what extent would you support continued use of the program in schools where it is currently implemented?	☐	☐	☐	☐	☐
3.	To what extent would you support adoption of the program by individual teachers not currently participating in the program?	☐	☐	☐	☐	☐
4.	To what extent would you support adoption of the program by an entire school?	☐	☐	☐	☐	☐
5.	To what extent would you support adoption of the program throughout the district?	☐	☐	☐	☐	☐
6.	To what extent would you support adoption of the program by schools outside the district?	☐	☐	☐	☐	☐

Finally, please answer two last questions.

E. 1. How much influence do each of the following individuals or groups actually have in determining the decisions made in the district about the Best Paced Math Program?

	A very great deal	A considerable amount	Some	Very little	None at all
a. EISD Board	☐	☐	☐	☐	☐
b. Administration: Superintendent; Assistant Superintendents for Secondary and Elementary Education; Associate Superintendent for Administrative Services; Associate Superintendent for Federal Programs	☐	☐	☐	☐	☐
c. Associate Superintendent for ESP and other ESP central staff	☐	☐	☐	☐	☐
d. Principals	☐	☐	☐	☐	☐
e. Teachers	☐	☐	☐	☐	☐
f. You yourself	☐	☐	☐	☐	☐

2. At present, how familiar are you with the best paced math program?

Very familiar	Fairly familiar	Not familiar
☐	☐	☐

Please check: SEX Female ___ Male ___

ETHNICITY Mex-Amer. ___ Black ___ Anglo ___ Other ___

A2: EXTERNAL HIGH SCHOOL

1

The following questions focus on the External High School Diploma Program initiated by the Edgewood School Plan. As used in this questionnaire, the External High School Diploma Program refers to the un-graded, experience based school for high school drop outs. The questionnaire is divided into five sections. In this first section, please indicate your perceptions about conditions existing at the time the External High School Diploma Program was initiated by placing a check in the appropriate box. These questions may be answered either on the basis of your direct or indirect experience with the program. Please check only <u>one</u> box per question.

		a very great extent	a considerable extent	some extent	very little extent	not at all
A. 1.	When the external high school diploma program was first initiated in the Edgewood District, to what extent do you belive there was a need for the program?	☐	☐	☐	☐	☐
2.	When the external high school diploma program was first initiated in the Edgewood District, to what extent do you believe its use was appropriate?	☐	☐	☐	☐	☐
3.	When the external high school diploma program was first initiated in the Edgewood District, to what extent do you believe there would be an increase in number of students receiving a high school diploma?	☐	☐	☐	☐	☐
4.	When the external high school diploma program was first started in the Edgewood District, to what extent do you believe ESP central staff was competent to initiate and/or implement the program?	☐	☐	☐	☐	☐
5.	When the external high school diploma program was first initiated in the Edgewood District, to what extent do you believe participating teachers understood the program?	☐	☐	☐	☐	☐
6.	When the external high school diploma program was first initiated in the Edgewood District, to what extent do you believe Edgewood teachers endorsed its implementation?	☐	☐	☐	☐	☐
7.	When the external high school diploma program was first initiated, to what extent do you believe Edgewood teachers felt the program's implementation would improve their status in the district?	☐	☐	☐	☐	☐

Think now about the decision making process related to the external high school diploma program. Please pay particular attention to the time frame suggested in each question, e.g.; past, present, future.

		a very great extent	a considerable extent	some extent	very little extent	not at all
B. 1.	To what extent were you personally involved in the initial decision making process to implement the external high school diploma program?	☐	☐	☐	☐	☐
2.	To what extent did your own personal imput have an influence on the actual decision made at that time?	☐	☐	☐	☐	☐
3.	To what extent are you personally involved in the present decision making process regarding implementation of the external high school diploma program?	☐	☐	☐	☐	☐
4.	To what extent does your own personal input have an influence on actual decisions currently being made regarding the external high school diploma program?	☐	☐	☐	☐	☐
5.	In the future, to what extent will you probably be personally involved in the decision making process about continuing implementation of the external high school diploma program?	☐	☐	☐	☐	☐
6.	In actual practice, to what extent will your own personal imput influence future decisions regarding implementation of the external high school diploma program?	☐	☐	☐	☐	☐
7.	In terms of decisions regarding the external high school diploma program, to what extent do you and other teachers have actual influence in relation to the influence of other groups in the district?	☐	☐	☐	☐	☐

Now, please turn your attention to the effects or outcomes the ESP initiated external high school diploma program had on various persons or groups in the district. Answer these questions either on the basis of your direct or indirect experience with the program.

		a very great extent	a considerable extent	some extent	a very little extent	not at all
C. 1.	To what extent has student achievement increased because of the external high school diploma program?	☐	☐	☐	☐	☐
2.	To what extent has student attitude toward school improved because of the external high school diploma program?	☐	☐	☐	☐	☐
3.	To what extent have parents' attitudes toward school improved because of their children's involvement in the external high school diploma program?	☐	☐	☐	☐	☐
4.	To what extent has teacher support of un-graded, experienced based secondary education increased because of the external high school diploma program?	☐	☐	☐	☐	☐
5.	To what extent has teacher attitude toward students improved because of external high school diploma program?	☐	☐	☐	☐	☐
6.	To what extent has the Edgewood administration's support of ungraded, experienced based secondary education increased because of the external high school diploma program?	☐	☐	☐	☐	☐
7.	To what extent has the Edgewood administration's general support of innovation increased because of the external high school diploma program?	☐	☐	☐	☐	☐

Consider now your attitudes concerning the continuation and expansion of the external high school diploma program initiated by ESP when the support of federal funding terminates.

	a very great extent	a considerable extent	some extent	a very little extent	not at all
D. 1. To what extent would you support a continuation of the external high school diploma program in the Edgewood school district?	☐	☐	☐	☐	☐
2. To what extent would you recommend that additional students enroll in the current external high school diploma program?	☐	☐	☐	☐	☐
3. To what extent would you support an expansion of facilities, resources, or personnel for the external high school diploma program in the Edgewood district?	☐	☐	☐	☐	☐
4. To what extent would you support adoption of the external high school program by other school districts?	☐	☐	☐	☐	☐

Finally, please answer two last questions.

E. 1. How much influence do each of the following individuals or groups actually have in determining the decisions made in the district about the external high school diploma program?

	a very great deal	a considerable amount	some	very little	none at all
a. EISD Board	☐	☐	☐	☐	☐
b. Administration: Superintendent; Assistant Superintendents for Secondary and Elementary Education; Associate Superintendent for Administrative Services; Associate Superintendent for Federal Programs	☐	☐	☐	☐	☐
c. Associate Superintendent for ESP and other ESP central staff	☐	☐	☐	☐	☐
d. Principals	☐	☐	☐	☐	☐
e. Teachers	☐	☐	☐	☐	☐
f. You yourself	☐	☐	☐	☐	☐

	Very familiar	Fairly familiar	Not familiar
2. At present, how familiar are you with the external high school diploma program?	☐	☐	☐

A3: CULTURAL ADVOCACY

1

The following questions focus on the Cultural Advocacy Program developed by the Edgewood School Plan. In this questionnaire, the Cultural Advocacy Program refers to the reinforcement of the students' cultural and historical experiences through chosen instructional methods, curriculum design, and staff training activities. The Cultural Advocacy materials included themes on Mexico, Mexican Americans, and San Antonio. The program was incorporated into the ESP Communication Skills and other programs but was discontinued as a separate component last summer.

The questionnaire is divided into five sections. In this first section, please indicate your perceptions about conditions existing at the time the Cultural Advocacy Program was initiated by placing a check in the appropriate box. These questions may be answered either on the basis of your direct or indirect experience with the program. Please check only <u>one</u> box per question.

		a very great extent	a considerable extent	some extent	very little extent	not at all
A. 1.	When the Cultural Advocacy program was first initiated in ESP schools, to what extent do you believe there was a need for the program?	☐	☐	☐	☐	☐
2.	When the Cultural Advocacy program was first initiated in ESP schools, to what extent do you believe its use was appropriate?	☐	☐	☐	☐	☐
3.	When the Cultural Advocacy program was first initiated in ESP schools, to what extent do you believe it would reinforce student's cultural and historical experiences and improve student achievement?	☐	☐	☐	☐	☐
4.	When the Cultural Advocacy program was first started in ESP schools, to what extent do you believe ESP Central staff was competent to initiate the program?	☐	☐	☐	☐	☐
5.	When the Cultural Advocacy program was first initiated in ESP schools, to what extent do you believe participating teachers understood the program?	☐	☐	☐	☐	☐
6.	When the Cultural Advocacy program was first initiated in ESP schools, to what extent do you believe ESP teachers endorsed its implementation?	☐	☐	☐	☐	☐
7.	When the Cultural Advocacy program was first initiated, to what extent do you believe participating teachers felt the program's implementation would improve their status in the district?	☐	☐	☐	☐	☐

Think now about the decision making process related to the Cultural Advocacy program.

		a very great extent	a considerable extent	some extent	very little extent	not at all
B. 1.	To what extent were you personally involved in the initial decision making process to implement the Cultural Advocacy program?	☐	☐	☐	☐	☐
2.	To what extent did your own personal input have an influence on the actual decision made at that time?	☐	☐	☐	☐	☐
3.	During the life of the program, to what extent were you personally involved in the decision making process regarding the operation of Cultural Advocacy?	☐	☐	☐	☐	☐
4.	During the life of the program, to what extent did your own personal input influence the actual decisions made regarding the operation of Cultural Advocacy?	☐	☐	☐	☐	☐
5.	If the program were given renewed emphasis, to what extent would you probably be personally involved in the decision making process about the implementation of Cultural Advocacy?	☐	☐	☐	☐	☐
6.	If the program were given renewed emphasis, to what extent would your own personal input influence actual decisions implementing Cultural Advocacy?	☐	☐	☐	☐	☐
7.	In terms of decisions regarding the Cultural Advocacy program, to what extent did <u>you and other teachers</u> have actual influence in relation to the influence of other groups in the district?	☐	☐	☐	☐	☐

Now, please turn your attention to the effects or outcomes the ESP initiated Cultural Advocacy program had on various persons or groups in the district. Answer these questions either on the basis of your direct or indirect experience with the program.

	a very great extent	a considerable extent	some extent	a very little extent	not at all
1. To what extent did student achievement increase because of Cultural Advocacy?	☐	☐	☐	☐	☐
2. To what extent did student attitude toward school improve because of the Cultural Advocacy program?	☐	☐	☐	☐	☐
3. To what extent did parents' attitudes toward school improve because of their children's involvement in the Cultural Advocacy program?	☐	☐	☐	☐	☐
4. To what extent did teacher support of activities, programs planned to reinforce students' cultural and historical experiences, increase because of the Cultural Advocacy program?	☐	☐	☐	☐	☐
5. To what extent did teacher attitude toward students improve because of the Cultural Advocacy program?	☐	☐	☐	☐	☐
6. To what extent did the Edgewood administration's support of activities, programs planned to reinforce students' cultural and historical experiences, increase because of the Cultural Advocacy program?	☐	☐	☐	☐	☐
7. To what extent did the Edgewood administration's general support of innovation increase because of the Cultural Advocacy program?	☐	☐	☐	☐	☐

Consider now what would your attitudes have been concerning the continuation and expansion of the Cultural Advocacy program developed by ESP if it had continued. Please pay particular attention to the persons or groups suggested in each question, e.g., individual teachers, individual schools, individual districts.

	a very great extent	a considerable extent	some extent	a very little extent	not at all
D. 1. To what extent would you have supported continued use of the program by individual classroom teachers who used it?	☐	☐	☐	☐	☐
2. To what extent would you have supported continued use of the program in schools where it was implemented?	☐	☐	☐	☐	☐
3. To what extent would you have supported adoption of the program by individual teachers who had not participated in the program?	☐	☐	☐	☐	☐
4. To what extent would you have supported adoption of the program by an entire school?	☐	☐	☐	☐	☐
5. To what extent would you have supported adoption of the program throughout the district?	☐	☐	☐	☐	☐
6. To what extent would you have supported adoption of the program by schools outside the district?	☐	☐	☐	☐	☐

Finally, please answer two last questions.

E. 1. How much influence did each of the following individuals or groups actually have in determining the decisions made in the district about the Cultural Advocacy program?

	a very great extent	a considerable extent	some extent	a very little extent	not at all
a. EISD Board	☐	☐	☐	☐	☐
b. Administration: Superintendent; Assistant Superintendents for Secondary and Elementary Education; Associate Superintendent for Administrative services; Associate Superintendent for Federal Programs	☐	☐	☐	☐	☐
c. Associate Superintendent for ESP and other ESP central staff	☐	☐	☐	☐	☐
d. Principals	☐	☐	☐	☐	☐
e. Teachers	☐	☐	☐	☐	☐
f. You yourself	☐	☐	☐	☐	☐

	Very familiar	Fairly familiar	Not familiar
2. How familiar were you with the Cultural Advocacy program?	☐	☐	☐

A4: INSTRUMENT ASSESSMENT FORM

1. Section A
   In answering the questions did you place yourself in the time frame of when ESP was initiated? Yes __ No __

   If no, would it be better to rephrase the questions - At the time ESP was initiated, I believed there was a need for the best paced math, in the Edgewood schools? Yes __ No __

2. Section B
   Were you thinking of past decisions about best paced math when responding to the first two questions? Yes __ No __

   Were you thinking of present decisions about best paced math for questions 3 and 4? Yes __ No __

   Were you thinking of future decisions about best paced math when answering questions 5 and 6? Yes __ No __

   Did you place yourself in the teacher reference group in answering question 7? Yes __ No __

3. Section C
   Was there any difficulty in understanding what was meant by effects of best paced math? Yes __ No __
   If yes, do you feel effects should be more defined? Yes __ No __

4. Section D
   Was there any difficulty in understanding the point of reference, e.g., who would continue using best paced math or where the program would be expanded, in this section of questions? Yes __ No __

5. Section E
   Did question 2 provide opportunity for you to respond according to your actual familiarity with the best paced math program? Yes __ No __
   If no, should more response categories be provided? Yes __ No __

6. Completion of the questionnaire required how much of your time _____ Min.

7. Did you find the questionnaire format confusing or complicated in any way? Yes __ No __
   If so, in what sections?

8. Is the wording of any question misleading? Yes __ No __
   Please indicate misleading items.

9. Does the questionnaire provide a meaningful and worthwhile opportunity for expressing your reactions to the experience with best paced math? Yes __ No __

APPENDIX B

QUESTIONNAIRE RETURNS BY TREATMENT, POSITION, AND GROUP

B1: Best Paced Math Questionnaire Returns by Position and Group

Position	Total Possible N	N Returned	% Returned
Board	7	4	57
Administration	5	4	80
ESP Central Staff	15	10	66
Principals	14	13	93
Teachers			
Elementary:			
ESP			
Burleson	9	6	66
Cenizo Park	13	10	77
H. K. Williams	15	11	73
Roosevelt	14	11	79
Comparison			
Coronado	14	10	71
Las Palmas	13	7	54
Other			
H. B. Gonzales	7	3	43
Loma Park	17	10	59
Middle:			
ESP			
Gus Garcia	17	15	88
Comparison			
Escobar	18	17	94
Other			
Brentwood	14	9	64
Secondary:			
ESP			
Memorial	37	26	70
Comparison			
Edgewood	43	24	56
Other			
Kennedy	46	24	52

B2: External High School Diploma Program Returns by Position and Group

Position	Total Possible N	N Returned	% Returned
Board	7	3	43
Administration	5	1	20
ESP Central Staff	15	8	53
Principals	14	10	71
Teachers			
Elementary:			
ESP			
Burleson	9	5	55
Cenizo Park	13	8	61
H. K. Williams	15	7	46
Roosevelt	14	9	64
Comparison			
Coronado	14	10	71
Las Palmas	13	8	61
Other			
H. B. Gonzales	7	4	57
Loma Park	17	8	47
Middle:			
ESP			
Gus Garcia	17	14	82
Comparison			
Escobar	18	15	83
Other			
Brentwood	14	7	50
Secondary:			
ESP			
Memorial	37	24	65
Comparison			
Edgewood	43	18	41
Other			
Kennedy	46	21	45

B3: Cultural Advocacy Questionnaire Returns by Position and Group

Position	Total Possible N	N Returned	% Returned
Board	7	3	43
Administration	5	2	40
ESP Central Staff	15	6	40
Principals	14	11	79
Teachers			
Elementary:			
ESP			
Burleson	9	3	33
Cenizo Park	13	11	69
H. K. Williams	15	7	47
Roosevelt	14	8	57
Comparison			
Coronado	14	9	64
Las Palmas	13	6	46
Other			
H. B. Gonzales	7	2	29
Loma Park	17	3	18
Middle:			
ESP			
Gus Garcia	17	11	65
Comparison			
Escobar	18	13	72
Other			
Brentwood	14	0	0
Secondary:			
ESP			
Memorial	37	20	54
Comparison			
Edgewood	43	11	26
Other			
Kennedy	46	19	41